

PEST CONTROL

26 no. 1
**JANUARY
1958**

USA 153
Silver

Anniversary Issue

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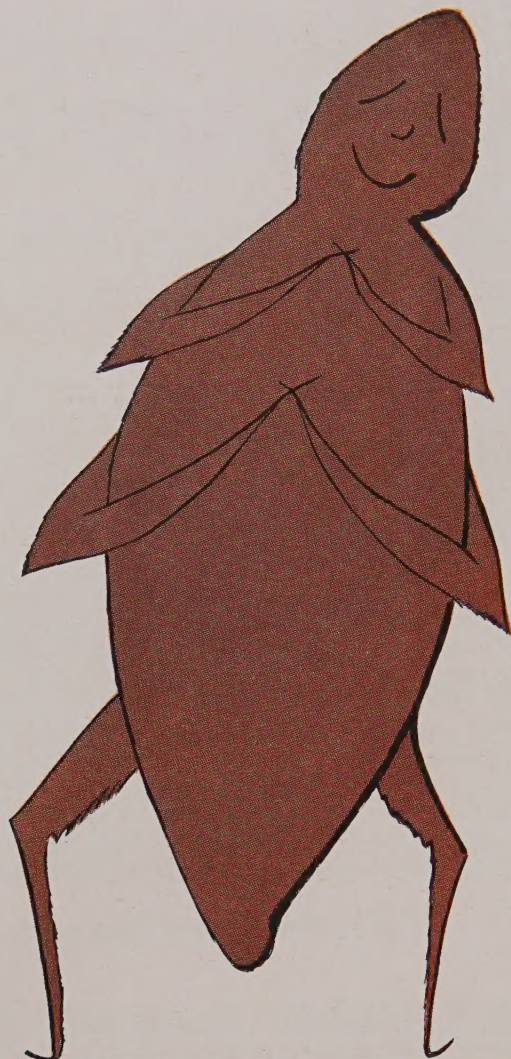
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25 Years Together

Pest Control magazine celebrates its Silver Anniversary with this issue. It's been 25 years since the first issue of *Exterminators Log* (our original name) made its first appearance in January 1933.

It was an exterminator (now called a pest control operator), Al Cossetta, who founded this magazine and guided its destiny for 15 years. We owe much to Mr. Cossetta for the courageous and pioneering step he took to provide a monthly periodical for a then young, unorganized industry. Initial paid circulation was about 100. By 1948, when he decided to retire from the publishing business, his magazine had a circulation of 1,850. Today, PCOs are members of a respected industry and this their magazine is read by over 5,000 located in all the 48 states and some even in 52 foreign countries.

For the past decade, the present editor and publisher has cultivated the challenge to portray this industry at its best and be its spokesman through articles from the most informed sources available. Any success we have realized must be attributed to the wholehearted cooperation *Pest Control* has had from the authors of its features, its editorial staff, from readers such as you, from suppliers, and from the executives and officers of the National Pest Control Association, all of whom have assisted us toward our goal: industry improvement.

A soundly-edited, well-read business magazine must help lead the way, too. *Pest Control* accepts that responsibility by keeping in close contact with its readers. It reflects the best industry practices, helps correct bad ones, and helps set standards for efficient business management, safety, servicemen training, and control procedures. *Pest Control* is dedicated to the job of informing, educating, and assisting the industry in every phase of its expanding operation.

Our advertising pages make available to suppliers of chemicals, equipment, and related supplies, a well-read medium in which to sell their products and explain their developmental programs. They have helped make *Pest Control* the how-to-do-it, where-to-buy-it magazine it is.

Scores of our friends have written congratulatory letters on this occasion (a few are printed in this issue), but we are not leaning back complacently basking in such praise. Instead, our sleeves remain rolled-up, and our shoe leather worn, as we dig for news and work together with experts throughout the country to keep *Pest Control* a reliable, specialized source of dependable information for the urban and industrial pest control industry.

1933

OUR SILVER ANNIVERSARY

YEAR 1958

SERIAL
SEPARATE

1958

U.S.A. 153

EVERY MONTH
SINCE 1933

PEST CONTROL

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East Coast

JAMES E. MUNFORD CO.
West Coast

Volume 26

January 1958

No. 1

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Published Monthly by
TRADE MAGAZINES, INC.

Publication Office: 324 N. State Street, Painesville, Ohio

Please send all correspondence to
Editorial and Advertising Offices: 1900 Euclid Avenue, Cleveland 15, Ohio

Cooperating with



New York City Advertising Office
Theodore Riedeberg & Associates
415 Lexington Ave., Phone: MUrray Hill 7-1488

West Coast Advertising Office
The James E. Munford Company
517 North Ave. 64, Los Angeles 42, Calif.,
Phone: CLinton 5-1547

Single Copy Price: 75 cents; Foreign: \$1.00. Subscription Rates: U. S. and possessions, Canada and members of the Pan American Postal Union, 1 year, \$5.00; 2 years, \$8.00. All other foreign subscriptions, 1 year \$6.00; 2 years, \$10.00. Change of Address: Three weeks advance notice is necessary for change of address. Both old and new address must be given. Post Office will not forward copies. Entered as Second Class Matter at the Post Office at Painesville, Ohio, under the act of March 3, 1879.

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Today's Pesticides . . .

Are Comparative Toxicities Meaningful?¹

by MITCHELL R. ZAVON, M.D.

Kettering Laboratory, University of Cincinnati
Cincinnati, Ohio

THE DAY of the secret formula has given way to standardization of pest control materials and methods of application. There are, of course, individual variations in both formulation and application, but these variations are relatively minor. A recent survey of the materials being used by a group of operators in one large metropolitan community showed how surprisingly small this variation is in the way pest control operators use and stock materials. Current enthusiasm about newly-developed materials tends to put the old standbys in the background, but they are still very much in use. Hydrogen cyanide, 1080, arsenic trioxide, pyrethrum, ethylene dibromide, thallium, and a host of other chemicals continue to serve a useful purpose and cannot be ignored in a discussion of modern pest control methods.

Consumer Packaging

Packaging of pesticides for consumer use in the home, garden, or office is a significant part of many pest control businesses. Regulations prescribe the type of labeling that must be placed on the package if it is to be sold in interstate commerce, but these regulations do not require consumers to read the label. In order to sell, pesticides must be packaged attractively in easy-to-use containers. We thus introduce into the home or office of purchasers an attractive package which may be emptied easily—a

ready invitation to youngsters to do just that.

One of the most common causes of poisonings among children today is the ingestion of pesticides. No solution to this ever-growing problem has been found, but proper attention to packaging could make it more difficult for children to open the container. Packages might still be made attractive, yet less easy to open. The availability of some materials is an invitation to trouble. We have continual difficulty with children taking "roach pills." If the same ingredients were not available in pill form, we probably would have fewer poisonings. Thought is needed to prevent this type of trouble, because if such thought is not given to the problem, we will likely have more regulation of pesticides and of pest control activities.

The PCO needs assistance in package design and in product formulation so he can market the safest possible product. The widespread distribution of pesticides has led to their use by persons not acquainted with proper methods of storage and application of potentially dangerous chemicals. Possibly as a result, the number of poisonings, particularly among children, has become a more serious problem. Significant in this connection is the rapid growth of Poison Information Centers. There are now more than 100 located in this country, and a National Poison Control Center Clearing House was recently established in Washington by the United States Public Health Service. If needed, a physician can often get invaluable

assistance from his local center regarding the contents of packaged materials and how to treat poisoning from them. But the development of information centers cannot be relied upon for an answer. Instead, the home use of pesticides must be made as safe as possible to prevent the need for remedial action by a physician.

Formulation Practices

Formulation of pesticide mixtures and the packaging of them for home use are routine steps for many operators. Conditions under which the work is done and equipment used varies widely.

The hand bucket and wooden paddle have been superseded in some instances by more elaborate equipment. Despite warning after warning, men continue to mix chlorinated hydrocarbon and



Dr. Zavon is Assistant Professor in Industrial Medicine at Kettering Laboratory.

¹. Presented at the 12th annual convention of the Ohio Pest Control Association December 1-3, 1957.

organic phosphate insecticides without any precaution to prevent skin contamination. Mixing often takes place in poorly lighted, poorly ventilated rooms without adequate fire protection. Washing facilities, though present, often go unused. Lack of adequate ventilation is particularly noticeable. Absence of gloves is the rule rather than the exception. The same lack of precaution is usually evident with pesticides other than chlorinated hydrocarbons and organic phosphates. Although only a few mis-

haps have been officially traced to this lack of precaution, that does not mean there have been no injuries. Some injurious effects may have gone unrecognized. Further investigation will be required to determine if the apparent lack of mishaps is actually the case.

What has just been said about formulation practices could equally well be said about application methods. The serviceman who completes a termite job covered with the chemical he used obviously has had more insecticide

exposure than the termite. It is remarkable the operator generally reports little or no ill effects from his exposure. However, careful medical studies of large numbers of PCOs apparently have never been performed. Such studies would be needed to show conclusively that ill effects have not resulted.

Use Precautions

This then brings us to my main subject, the use precautions that must be observed in the use of modern pesticides. One incomplete list in my files enumerates 19 commonly used rodenticides, more than 200 insecticides, and innumerable fungicides and herbicides. To discuss each one in detail is obviously impossible. Instead, let us discuss the subject in general and refer to specific examples as necessary.

We shall always have among us those who want to destroy themselves by drinking an insecticide. But ignoring that unusual and ill advised use, is there any danger in the planned use of these materials?

The best answer to this can be given by the PCO himself, but he is generally ignored when answers to this question are sought. The question can only be answered by asking how many operators have suffered ill effects as the result of their work. As previously stated, someone, somewhere may have suffered ill effects, but it has never appeared to be much of a problem.

All work entails a certain risk. The housewife taking care of her home suffers many accidents. The farmer, living the "healthy" life, works at one of the most dangerous occupations, judging by statistics. When work is properly planned, the most dangerous materials can be handled with a minimum of danger.

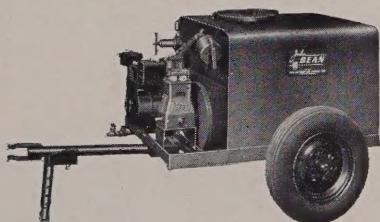
Animal Toxicity Data

In evaluating the potential hazard of modern pesticides use, experience has been ignored in favor of animal toxicity data. One cannot do this and arrive at a correct answer. The effect on the experimental animal who has been without food for 18 hours before ingesting DDT is not necessarily the effect on a man who has had a hearty breakfast. And the man doesn't drink the DDT solution either! Much of the data upon which possible hazard has been evaluated has been comparative toxicity data on labora-

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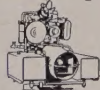
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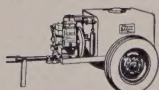
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tory animals. We have been comparing guinea pigs and man. But we have been feeding the insecticide to the guinea pig and feeding bacon and eggs to the man. Comparison of such data in order to evaluate hazard can lead to conclusions that are remarkable only in their lack of relationship to what is actually occurring.

No substance is entirely harmless or completely unsafe under all circumstances. We drink water every day but we can also drown in it. A material may be toxic to an animal but non-toxic to humans. Nitrogen trichloride is harmful to dogs, but apparently not to humans. Conversely, a material such as beryllium may cause no effect in the dog but be significantly harmful to man in even minute amounts. The accompanying table lists doses which will kill 50% of those rats given the material by mouth and 50% of the rabbits given the materials by skin application. The materials administered are chlorinated hydrocarbons, natural products and their derivatives, and an organic phosphate.

Comparison of acute oral and skin toxicity of some presently used pesticides

Insecticide	Acute Oral Toxicity to Rats (a) LD ₅₀ (mg./kg.)	Subacute Dermal Toxicity to Rabbits (a) LD ₅₀ (mg./kg.)
Chlorinated Hydrocarbons:		
Compound A	600	50
Compound B	50	20
Compound C	250	150
Compound D	65	40
Compound E	6000	600
Compound F	60	40
Compound G	500	30
Compound H	90	30 (b)
Compound I	10	40 (b)
Natural Products and Derivatives:		
Compound J	60	40
Compound K	150	150
Organic Phosphates:		
Compound L	4	10

- (a) Data based on various published and unpublished sources but abridged to conform to general thinking in a relative sense.
(b) Estimated.

What do these figures mean? From the practical standpoint they mean very little. That is why I have listed materials by letter rather than by name. The dose required to cause death among half of the animals exposed by eating the material or having it applied to their skin may bear little or no relationship to the possible exposure under actual conditions of use.

Although toxicity testing may

SAFE HANDLING

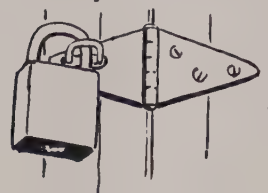
of Pest Control Chemicals

1. Read the Label



Follow instructions. Pay attention to all cautions and warnings.

4. Keep Pesticides Away from Children



Store pesticides in a locked room, garage, cabinet or (when in use) service vehicle. Never leave such materials where children, irresponsible persons or pets can reach the containers or knock them down. Never store pesticides near food, feedstuffs, or medicines.

2. Keep Chemicals in Labeled Containers



Never place a poison in an unlabeled container.

5. Dispose of Empty Containers Promptly

a. Burn bags and fiber drums. Stay out of smoke. Organic phosphate insecticides are toxic as gases. Anyone within the area of the smoke should be evacuated from area where vapor or fallout may occur. Decontamination after fire is extinguished can be accomplished by liberally washing area with an alkali solution.
b. Wash non-returnable containers for liquids inside and out. Crush or puncture to prevent reuse—bury, if possible.
c. Returnable containers should always be handled with safety precautions observed. Wash outsides thoroughly and return promptly.

3. Wash Hands, Face, Change Clothes Often

Wash hands and face frequently after spraying or dusting. Avoid pesticide contact of skin, eyes or mouth. Change clothes often.

In case of accident, Call Your Doctor Without Delay.

show that Compound E requires more than 6,000 milligrams per kilogram of body weight to kill half of the rats given the material by mouth and Compound F requires only 60 milligrams to produce the same effect, this does not mean Compound F is necessarily 100 times as dangerous. In actual use the danger of ingestion of either material may be negligible. The quantity of Compound F required to do the job may be appreciably less than the quantity of Compound E required. And, in addition, the variation from toxicity by the oral route and by application to the skin is considerable in Compound E

but not nearly so great in Compound F.

The argument is sometimes heard that data on acute exposure is not significant, or rather that it is the chronic exposure data that is meaningful. One can only answer that experience thus far has not revealed any significant effect from such chronic exposure.

The figures shown give comparative toxicity data. We are concerned here only with comparative hazard. The PCO does not ordinarily ingest large quantities of the insecticide he is applying. He may get some on his skin, but frequent changes of

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clothing and a daily shower will reduce this type of exposure. The operator may inhale considerable concentrations of insecticide, but data generally is not available on inhalation toxicity for all materials used.

Comparative toxicity data is only of value in estimating potential hazard until use experience can supersede earlier guesswork. On the basis of present experience, pesticides used today have caused little difficulty. Though hydrogen cyanide, sodium fluoroacetate, arsenic trioxide, thallium, and phosphorus are extremely toxic, the hazard has been reduced to a minimum by proper precautions.

Carry-Over of Complacency

The introduction of DDT ushered in a new era in pest control, but as insects developed resistance to DDT, newer and more potent pesticides have been introduced. Now there is a risk the operator who "got by" using little or no precautions with DDT will carry on with the same procedures when using chlordane, dieldrin, malathion, diazinon, parathion, and those pesticides yet to be introduced. Although there has been an absence of reports of difficulties, trouble will develop if carelessness is allowed.

In many cases inexperienced personnel will be called upon to mix or apply very toxic materials. A negligible hazard can become a major hazard for a PCO merely by his failure to observe customary safe procedure.

To help avoid this possibility the pesticides used by any one operator should be divided into groups that can be easily remembered. Precautions required when working with any member of the group are then learned easily.

For convenience, we can divide the commonly used pesticides in this manner:

Group I. Chlorinated Hydrocarbons:

Aldrin
Dieldrin
Lindane
Pentachlorophenol
Chlordane
Methoxychlor

These and all other chlorinated hydrocarbons should be mixed in a well ventilated room preferably with local exhaust ventilation. Synthetic rubber gloves or plastic gloves resistant to chlorinated hydrocarbons should be used and the hands washed after mixing. If application is made in a con-

fined space a mask may be necessary. The material should not be allowed to remain in contact with the skin.

Group II. The Organic Phosphates:

Parathion
Malathion
Diazinon
Dipterex

These and all other organic phosphates should be mixed and applied with the precautions used for Group I. In addition, medical consultation is necessary in order to maintain a check on the blood cholinesterase level, the only indication of absorption of which we are presently aware. Stringent observance of control measures must be observed with this group.

Group III. All Other Organic Insecticides:

Piperonyl butoxide
Piperonyl cyclohexane
Allethrin
Pyrethrin

Pulmonary sensitization and skin irritation and sensitization are more apt to be a problem in this group than with I and II. Otherwise the problem of hazard is not as great, and stringent control is not essential. These materials are not without hazard and must be handled carefully.

Group IV. Inorganic Insecticides and Rodenticides:

Arsenic trioxide
Calcium arsenate
Fluorides (sodium, sodium silico fluoride, sodium fluoroacetate)
Thallium sulfate
Phosphorus

Local exhaust ventilation, gloves and masks may all be necessary when mixing these materials. It is desirable that phosphorus paste be kept as cool as effective mixing allows. Avoid skin contact. Chronic poisoning can occur with some members of this group, so extreme care is needed to prevent repetition of very small doses.

The PCO may work with modern pesticides with little hazard to himself or those inhabiting the area being treated if he understands the action of the material he uses and takes precautions accordingly. None of the newly developed pesticides have caused any known significant health hazard to the operator, despite the fact immense amounts have been used. Choice of pesticide can generally be made in disregard of the standard comparative toxicity charts as long as the operator understands how any potential hazard may be avoided.



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When Writing to Advertisers Please Mention PEST CONTROL

Use Pesticides With Care^{1.}

by **JUSTUS C. WARD**

Head, Pesticide Regulation Section
U.S. Department of Agriculture
Washington, D.C.

PREVENTION of accidents with chemical poisons is increasing in importance to health and medical people in the United States. This emphasis is justified by vital statistics records which show an average of 1,500 deaths every year from solid and liquid poisons, and by the fact that from 100 to 150 poison victims are treated successfully for each one that dies. This means every year our doctors and hospitals treat from 150,000 to 225,000 cases of poisoning, and lose 1,500 of them.

The fact that the majority of these accidents is due to chemical specialties and drugs rather than pesticides, does not allay the public's fear of chemicals which carry the name "Poison" because of their intended uses. It is worthwhile, therefore, to re-emphasize the need for care in handling these products which are the basic tools of the structural pest control industry.

First, we should go into the various problems of using poisons, since the fatality and morbidity records prove we must not be doing as well as we could in handling chemical agents. I would also like to survey very briefly just how a continuation of our present trend in accidents is likely to bring more restrictive controls.

1080 Fatality List

Some PCOs are personally aware of limitations some cities and states have placed on the use of 1080, for example. Sodium fluoroacetate has been available to PCOs and government specialists for rodent and predatory animal control for just over 10 years, and many local governments have had established laws limiting the way it can be applied for most of that time. PCOs

have not been alone in having accidents with this poison, but the names of Roger Breitenbach (15), Stanley Sink (14), Henry Lucas (young adult), and Elmer George (adult), all of whom died from drinking 1080 solution placed in soft drink or whiskey bottles by PCOs, must be remembered. These four deaths comprise between 20 and 25% of all 1080 fatalities, and equal the known suicides with this poison. In addition, there have been five proven deaths and three suspected deaths traced to small children who drank 1080 solution from or chewed on empty souffle cups containing residues of the dried poison.

These are **human** fatalities, and I doubt that anyone who attempts to analyze the causes of these accidents could actually feel a single one was unavoidable. That conclusion emphasizes the vital importance of using care in handling all poisons. Perhaps a safety program for 1080 is a special challenge to the PCO, since he is the one qualified user now most likely to apply that poison in urban areas. It has been encouraging to note a reduction in human cases in the last few years, but the last fatality called to my attention was a "whiskey bottle" case. I cannot escape the conclusion that such cases are caused by inexcusable carelessness and must be condemned as vehemently as can be done.

The expert entitled to handle 1080 must be mentally alert enough to anticipate trouble and avoid exposing the poison in a way which invites disaster. Above all, he must stop "donating" samples of the solution to the client who says, "Sure, I know the stuff's poison. I'll take care of the bottle." Experience shows that the well-intentioned layman who gets the poison "to put out after the store's closed" may place the Coca Cola, 7-Up, or

whiskey bottle in the refrigerator with other drinks, on a shelf above the basement stairs, or some other place where it can be picked up easily by hired help, or a passer-by, before it is used.

The PCO is responsible for any 1080 he obtains, and must use it in his own service work to comply with instructions which have been issued. It is hard to turn a good client down, but no 1080 should ever be left with him; it's just too dangerous. Also, familiarity with poisons and what they do tends to make us too complacent about accidents. We are often inclined to look at fatality **figures** and forget each death statistic represents a living person robbed of a portion of his life. Let's all remember the names of some of these accident victims and consider them as martyrs to a careless system that can and must be changed.

Progress in Container Design

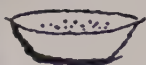
Some progress has been made in the design of devices in which 1080 solution can be exposed for rat or mouse control. As a consequence, the accident record



Author Ward has been in Federal Service since 1928. His promotion to section head came late last year (PC, Dec., '57, pg. 30).

^{1.} Presented at the 21st Purdue University Pest Control Operators' Conference.

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due to consumption from souffle cups has been better during the past few years. That indicates we have learned something about how the poison should be handled. Eight deaths among infants under two years of age is a high price for that knowledge.

Pet, Livestock Losses

In addition, we know very little about losses of pets and livestock because of 1080 use. Because some animal casualties may be due to secondary poisoning from eating dead or dying rodents, animal losses can not be pinned entirely on careless exposure of the poison itself. Prevention of secondary poisoning is a real problem, since it requires that poisoned rodents be picked up and burned, or buried deeply before cats, dogs, or other animals can find and eat them. Since the amount of 1080 left in the dried carcass of a single rat often can kill a dog, the necessity for prompt recovery of dead or dying rodents is apparent. This must be done before valuable animals are permitted free access to treated areas or to the immediate vicinity where sick rodents may have wandered.

This emphasis on 1080 should not be interpreted to mean it is the only poison which must be handled carefully. Recent deaths in Texas from thallium cockroach poison baits, and continuing losses throughout the country from arsenic, phosphorus, strychnine, certain organic phosphorus products, chlorinated hydrocarbons, and household chemicals such as kerosene, carbon tetrachloride, the whole category of hazardous drugs and many other products prove the problem of accidental poisoning merits the growing attention it is receiving.

The fact that health and medical groups have appointed committees to study the matter proves the significance of the problem. It emphasizes, however, that accidents are subject to increasing scrutiny by very influential groups, among which can be listed the Committees on Toxicology and on Pesticides of the American Medical Association, the Committee on Chemical Poisons of the American Public Health Association, the National Safety Council, the American Council on Pediatrics, the Committees on Toxicology and on Environmental Hygiene of the National Research Council, the



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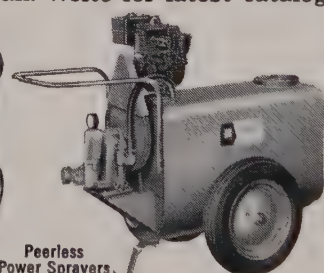
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TRADE MARK

programs for Poison Control Centers—to name only a few. These agencies are working aggressively to reduce needless loss of life from accidents. It is hoped this can be done through education, rather than by restrictive legislation or statutes prohibiting use of effective poisons. An alerted commercial PCO industry should strive to set an example for less experienced handlers of poisons. The record can be improved. Let's do so and make this year our safest year.

Notebook

TIPS AND IDEAS FROM THE FIELD

A "Bug" in Her Hearing-Aid

By Charles W. Houghton
Safety Fumigant Company
Boston, Massachusetts

It sounded funny to me too when this man came into our office and asked what household insect would eat cotton sheets, nylon stockings and a rayon robe, to mention only a few items. Whatever it was, his wife had it, he said, and his wife's anxiety over the situation had led to a serious nervous condition.

During the inspection, it became evident damage was limited to the bedroom. I asked to see the articles which had been eaten, and, sure enough, even some bed sheets purchased new the day before were riddled with holes.

Close examination proved beyond doubt these holes were the result of oxidation. I suspected an acid, most likely sulphuric. I asked the couple if either of them had a hearing-aid, and the wife responded that she did. It was the wet storage type using sulphuric acid, so I asked her to demonstrate how she maintained it.

She placed the battery on the mantle, took the tester and distilled water from a shelf and proceeded to test the battery. Directions stated the tester, when once removed from the battery, should be free of acid before placed in the distilled water bottle. The wife cleaned it alright, by flicking it behind her with the result that sulphuric acid droplets were scattered over everything in the room.

The cure to their problem was simple enough. I suggested she make it a point not to bring the hearing-aid into the bedroom anymore. This she did, and the trouble ended.

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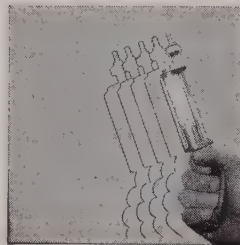
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When Writing to Advertisers Please Mention PEST CONTROL



FIRST AID for Poisoning

Based Upon a Report

Prepared by the American Medical Association's Committee on Toxicology, Dr. Bernard E. Conley, Sec.

The aim of first-aid measures is to help prevent absorption of the poison. **SPEED** is essential. First-aid measures must be started at once. If possible, one person should begin treatment while another calls a physician. When this is not possible, the nature of the poison will determine whether to call a physician first or begin first-aid measures and then notify a physician. Save the poison container and material itself if any remains. If the poison is not known, save a sample of the vomitus.

Measures To Be Taken Before Arrival of Physician

SWALLOWED POISONS

Many products used in and around the home, although not labeled "Poison," may be dangerous if taken internally. For example, some medications which are beneficial when used correctly may endanger life if used improperly or in excessive amounts.

In all cases, **except those indicated below, REMOVE POISON FROM PATIENT'S STOMACH IMMEDIATELY** by inducing vomiting. This cannot be overemphasized, for it is the essence of the treatment and is often a lifesaving procedure. Prevent chilling by wrapping patient in blankets if necessary. Do not give alcohol in any form.

A. Do Not Induce Vomiting If:

1. Patient is in coma or unconscious.
2. Patient is in convulsions.
3. Patient has swallowed petroleum products (i.e., kerosene, gasoline, lighter fluid.)
4. Patient has swallowed a corrosive poison (symptoms: severe pain, burning sensation in mouth and throat, vomiting).

CALL PHYSICIAN IMMEDIATELY

(a) Acid and acid-like corrosives: sodium acid sulfate (toilet bowl cleaners), acetic acid (glacial), sulfuric acid, nitric acid, oxalic acid, hydrofluoric acid (rust removers), iodine, silver nitrate (styptic pencil).

(b) Alkali corrosives: sodium hydroxide—lye (drain cleaners), sodium carbonate (washing soda), ammonia water, sodium hypochlorite (household bleach).

If the patient can swallow after ingesting a **corrosive poison**, the following substances (and amounts) may be given:

For acids: milk, water, or milk of magnesia (1 tablespoon to 1 cup of water).

FILL IN THESE

EMERGENCY

TELEPHONE NUMBERS

Physician _____

Fire Dept. _____

Hospital _____ (resuscitator)

Pharmacist _____

Police _____

Rescue Squads _____

For alkalis: milk, water, any fruit juice, or vinegar.

For patient 1-5 years old—1 to 2 cups.

For patient 5 years and older—up to 1 quart.

B. Induce Vomiting When Non-corrosive Substances Have Been Swallowed:

1. Give milk or water (for patient 1-5 years old—1 to 2 quarts; for patient over 5 years—up to 1 quart).
2. Induce vomiting by placing the blunt end of a spoon or your finger at the back of the patient's throat, or by use of this emetic—2 tablespoons of salt in a glass of warm water.

When retching and vomiting begin, place patient face down with head lower than hips. This prevents vomitus from entering the lungs and causing further damage.

INHALED POISONS

1. Carry patient (do not let him walk) to fresh air immediately.
2. Open all doors and windows.
3. Loosen all tight clothing.
4. Apply artificial respiration if breathing has stopped or is irregular.
5. Prevent chilling (wrap patient in blankets).
6. Keep patient as quiet as possible.
7. If patient is convulsing, keep him in bed in a semidark room; avoid jarring or noise.
8. Do not give alcohol in any form.

SKIN CONTAMINATION

1. Drench skin with water (shower, hose, faucet).
2. Apply stream of water on skin while removing clothing.
3. Cleanse skin thoroughly with water; rapidity in washing is

most important in reducing extent of injury.

EYE CONTAMINATION

1. Hold eyelids open, wash eyes with gentle stream of running water **immediately**. Delay of few seconds greatly increases extent of injury.
2. Continue washing until physician arrives.
3. **Do not use chemicals**; they may increase extent of injury.

INJECTED POISONS

(Scorpion and Snake Bites)

1. Make patient lie down as soon as possible.
2. Do not give alcohol in any form.
3. Apply tourniquet above injection site (e. g., between arm or leg and heart). The pulse in vessels below the tourniquet should not disappear, nor should the tourniquet produce a throbbing sensation. Tourniquet should be loosened for 1 minute every 15 minutes.
4. Apply ice-pack to the site of the bite.
5. Carry patient to physician or hospital; **DO NOT LET HIM WALK**.

CHEMICAL BURNS

1. Wash with large quantities of running water (except those caused by phosphorus).
2. Immediately cover with loosely applied clean cloth.
3. Avoid use of ointments, greases, powders, and other drugs in first-aid treatment of burns.
4. Treat shock by keeping patient flat, keeping him warm, and reassuring him until arrival of physician.

Measures to Prevent Poisoning Accidents

- A. Keep all drugs, poisonous substances, and household chemicals out of the reach of children.
- B. Do not store nonedible products on shelves used for storing food.
- C. Keep all poisonous substances in their original containers; do not transfer to unlabeled containers.
- D. When medicines are discarded, destroy them. Do not throw them where they might be reached by children or pets.
- E. When giving flavored and/or brightly colored medicine to children, **always** refer to it as medicine—**never** as candy.
- F. Do not take or give medicine in the dark.
- G. **READ LABELS** before using chemical products.



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How An FDA Inspector Looks At Plant Sanitation¹

By KENNETH R. LENNINGTON

Chief Inspector, Bureau of Field Administration
Food and Drug Administration
Washington, D. C.

The Food and Drug Inspector in his appraisal of plant sanitation is motivated by two sections of the Federal Food, Drug, and Cosmetic Act:

Section 402 (a) (3) which defines a food to be adulterated if it consists in whole or in part of any filthy, putrid, or decomposed substance or if it is otherwise unfit for food.

Section 402 (a) (4) that goes a step further and defines a food to be adulterated if it has been prepared, packed, or held under insanitary conditions whereby it may become contaminated with filth, or whereby it may have been rendered injurious to health.

The inspector's task is one of careful study and examination of raw materials and ingredients, processing conditions and practices, including maintenance of equipment, personal habits of employees, packing and storage conditions, and any and all factors influencing the cleanliness and wholesomeness of the finished article. There are many elements which may contribute to contamination of foods or drugs. Of general interest to pest control operators, however, are those broken down into the following categories, the significance of which is not necessarily reflected in the order of their listing:

1. Filth introduced in raw materials—storage type insects, mold, rot, bacterial contamination.
2. Rats and mice—careless use of rodenticides.
3. Flies.
4. Cockroaches.
5. Animals — cats, dogs, bats, birds.

Prior to entering the plant, the inspector prepares himself to do the job as completely and quickly as possible. He reviews any previous inspection report on that firm, gains an idea of its relative size, type of products, and

manufacturing processes. He assembles the basic equipment he will need, including a flashlight, a portable black light; camera, sieves, plastic bags, and other sampling equipment.

Filth in Raw Materials

Once at the plant, he first examines the raw material storage area for signs of rodents, insects, cats, and indications of possible contamination with chemicals, water, floor filth, or other objectionable matter.

Next he closely inspects the raw materials themselves for any foreign material. He uses a portable black light to detect urine contamination. Flour, meal, or other pulverized materials are sieved where there is any suspicion of insects, rodent excreta, or other contamination of a macroscopic size.

Where He Spots Rodent Activity

The inspector is alert throughout his inspection for signs of rodent activity, especially at the junction of walls and floors, behind radiators, on shelving and other areas where rats and mice are likely to frequent. Carton storage areas, basement boiler rooms, lofts, and other darkened areas, where plant employee activity is somewhat less than in other parts of the plant, often contain rodent evidence.

Experience has shown that when rodents infest a factory, evidence of contamination can be found in the finished product. In a bakery, for example, if rodents inhabit the flour storage area, excreta pellets are usually found in the flour sifter. Examination of molding starch in a rodent-infested candy plant will normally disclose excreta fragments, rodent hairs, and even whole excreta pellets. Clean scrap from cutting, molding, or packing operations, as well as the occasional batch that does not turn out satisfactorily, is commonly reprocessed by most manufacturers. This material, unless stored in a protective manner, may become defiled by rodents and upon reuse, the consequent

product is contaminated. Products subject to drying, aging, tempering, etc., involving exposure overnight or longer, are often contaminated by foraging rodents.

The use of poisonous rodenticides or insecticides, such as 1080 and DDT, the latter sometimes used in tracking powder, may result in contamination of foods and ingredients. Careless use in a manner whereby the foods may be rendered injurious to health is in violation to section 402 (a) (4) of the Food, Drug, and Cosmetic Act. When encountering chemicals of this nature in plants, the inspector will collect samples of the powder, bait, or liquid for laboratory identification, fully describe conditions of use, and frequently use photographs to depict the chemical's proximity to foods and the avenue of possible contamination. He will also collect samples of the food suspected of being contaminated and, in general, supply complete facts and data to establish the contamination or its likelihood.

Looks for Evidence of Flies

The inspector gives close attention to flies, making accurate observations on their incidence and traffic patterns, such as from toilets or open outdoor privies into manufacturing areas. Attention is given to the presence or absence of screens and to fly propagating areas in the vicinity of the factory. Some raw materials, especially fruits and tomatoes, attract flies and may serve as egg-laying material with the result that finished products are contaminated with fly eggs and even maggots.

... and Roaches

Roaches frequently infest food plants, but since they are nocturnal in their habits, they may not be seen except in darkened areas. Use of insecticides is usually necessary in roach control, but this practice offers possibility of dying insects getting into exposed batches and inadequately protected ingredients.

Cats, Bats and Birds

Recognition must be given to the role of animals in contaminating foods. Cats are frequently given the run of food plants. Some operators feel the cat is a necessary and peculiarly success-

(Continued on page 54)

1. Based on a talk presented at the 71st annual meeting of the Association of Official Agricultural Chemists in Washington, D.C., October 15, 1957.

Precision Instruments FOR PROFESSIONAL SPRAYING



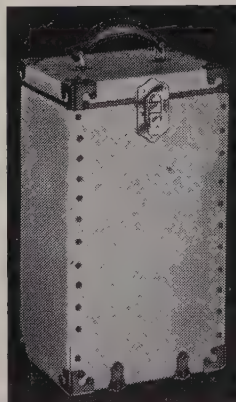
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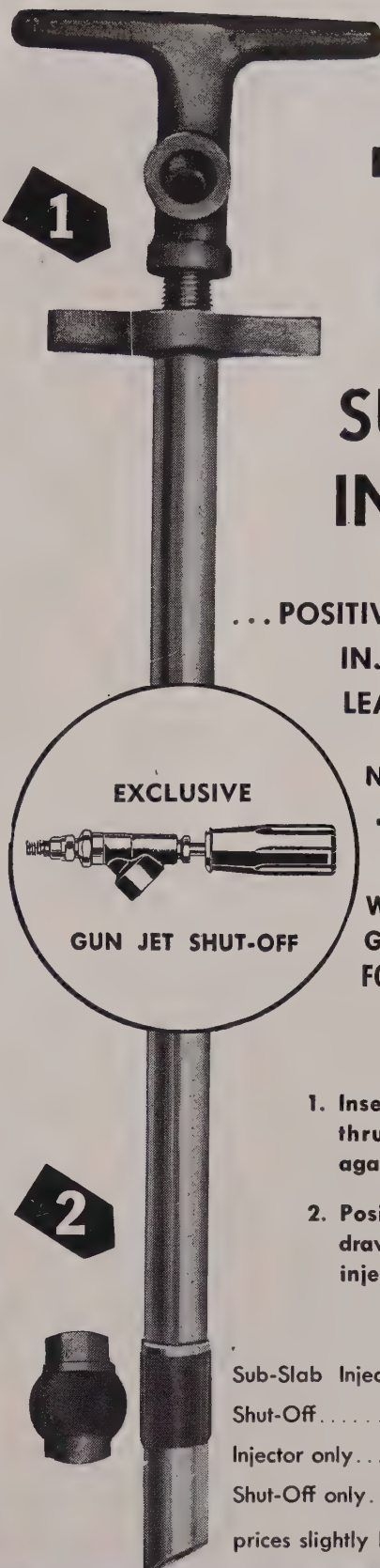


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OXFORD, ALABAMA

by **WILSON S. BORLAND**

Research Analyst, City Housing Authority, Pittsburgh, Pennsylvania

Rat Extermination



Backyard slum. Pictured on the left immediately above is Pittsburgh's swank Golden Triangle, which is adjacent to the sprawling Lower Hill slum, shown right. Before rat-infested, dilapidated buildings could be demolished, rodents had to be eliminated to avoid possibility of them invading beautiful new Point development. In upper corner is a typical Lower Hill alley cluttered with debris, ideal for rat harborage.

in **Pittsburgh's "Lower Hill"**

HOW TO CLEAR almost 100 acres of rat-infested slum housing and small businesses — Pittsburgh's notorious "Lower Hill District"—without forcing a mass rodent migration into the adjacent Golden Triangle and the nearby, still-tenantable Upper Hill and Bluff areas: This was the problem faced by the Urban Redevelopment Authority of the City of Pittsburgh and its demolition-relocation agent, the Housing Authority of the City of Pittsburgh, in the early spring of 1956 as land-acquisition began on the city's largest redevelopment clearance job to date.

"The Lower Hill," once the home of financier Thomas Mellon (father of Andrew Mellon, Secretary of the Treasury in the Harding, Coolidge, and Hoover administrations), the birthplace of movie-star Adolph Menjou, and the training ground of such sports' figures as Harry Greb, Billy Conn, Jake Pitler, and Bobby Del Greco, had become, in the last third of a century, the city's worst health, social, and economic liability.

The Lower Hill's 95 acres were

covered with almost 1,400 buildings, housing close to 1,900 families and 1,600 unattached persons, as well as scores of small businesses, stores, eating places, and light industry. Ninety per cent of the buildings were over 50 years old, and almost two-thirds (62.4%) were built before 1890, some dating back to the Civil War. Scattered all over the area, among the generally overcrowded dwellings, were several hundred businesses: neighborhood stores, food markets, wholesale food distributors, and restaurants. Many of these specialized in nationality foods—Italian, Greek, Syrian, Lebanese, kosher—while others were wholesale distributors of everything from leather and luggage to party novelties and "notions".

This busy, congested, and physically decayed area—a paradise for rats—bordered directly on Pittsburgh's fabulous and reborn Golden Triangle. It was but a stone's throw from the kosher pickle factories, the pasticcerias, and the kebez and pumpernickel bakeries to some of the city's highest grade hotels and apart-

ment-hotels, department stores, and ultra-modern office buildings. The Lower Hill with its hordes of rats "had to go", since the rats were not welcome in the Triangle or any other nearby areas.

Before a roof was stripped or a brick pried loose, several extermination-program meetings were held among members of the administrative and technical staffs of the Urban Redevelopment and Housing Authorities, the City Health Department, and rodent-control specialists from the U.S. Public Health Service. An analysis of the area found it to be seriously but "normally" infested for an old, over-crowded, mixed business-residential district.

After some discussion on the assignment of responsibility, the Housing Authority agreed to add the job to its other functions. Administrator Alfred L. Tronzo pointed out the Authority was already demolition and relocation agent for the redevelopment operation, and that it had a trained exterminator on its staff as well as over 15 years experience in pest control in the 7,000 homes

actively under its management. As further insurance of an effective job and at the Housing Authority's suggestion, provisions were written into all demolition contracts obligating the demolition contractors to take additional measures to guarantee extermination.

Program

Because other organizations or municipalities may be faced with a similar problem, a brief sketch of the methods and procedures on the Lower Hill program may be of interest. The program is comprised of two parts: exterminations by the Housing Authority, and those performed by the demolition contractors.

Key control of the operation is a master-list maintained in the office of R. D. Lane, Housing Authority engineer responsible for the maintenance phases of work in the clearance area. This list carries the addresses and parcel number of every property in the area, the dates of first exterminations, and re-visits, etc. The list is checked daily for new vacancies reported by the maintenance crew and the relocation-management field staff.

The field work of extermination is performed by a small, picked crew, carefully trained by the Authority's staff exterminator, Harold Calpas, to discover and identify rat runs, harborage, and other signs of infestation,

to distribute poison baits in proper quantity and location, and to re-inspect for indications of continuing infestation.

Poison Agent

Basic killing agent used in the Authority program is double-strength (5%) warfarin prepared with a cornmeal base. The baits are spread liberally throughout the buildings on paper plates or in paper cups. If signs of active infestation are present, a triple quantity is used. (It is estimated the average building needs roughly one pound, at \$1.00 per pound, of ready-mixed warfarin bait.) If, on rechecking, the bait has been completely consumed, the quantity is doubled or tripled; if it remains unconsumed in any portion of the building, the bait is then moved to other parts of the building where infestation is still evident. All vacant buildings are baited as soon as vacated; in partly occupied buildings, vacant parts are baited and precautions taken to bar access to the baited areas.

Warfarin is being used because, first, it is relatively harmless to humans (large quantities ingested can produce severe stomach upsets), and, secondly, it appears to be extremely effective against rats. It is a relatively slow killer of husky rats, causing internal hemorrhaging, but this very slowness encourages the

rats to eat large quantities, thus guaranteeing their certain death. Rats, according to Exterminator Calpas, have been known to carry the cups away, hoarding the contents and eating themselves to death "at their leisure".

It is difficult to measure completely the effectiveness of the warfarin treatment since many of

Next Month PC Spotlights

TERMITES

- Latest On Forest Service Research with Soil Poisons
- Preliminary Results of Purdue Soil Fumigant Experiments
- Church Termite Fumigation In Honolulu, Hawaii
- "Look-Alike" Wood Rots; Male Adult Embiid and Subterranean Termite Alate

Plus Other Features, News

the rodents remain in the foundations of demolished buildings and are buried under the rubble by bulldozers filling in cellars, but Mr. Calpas has collected as high as 800 rat-bodies in one building following several days baiting.

Final Treatment

As a final precaution, all demolition contracts specify that "three days prior to beginning demolition of any building" fresh baits (comprised of powdered Red Squill mixed in proportions of 1 to 10 with fresh hamburger meat) must be spread in the scheduled buildings by a professional exterminator, employed under a subcontract by the contractor. Conspicuous warning signs, describing the nature of the poison, are posted on all baited buildings.

The Housing Authority is convinced its extermination program has been and is continuing to be of maximum effectiveness. The proof? "Although we have 'cleaned up' over 600 buildings to date," Housing Administrator Tronzo states, "we have not had one single complaint from any Triangle hotel, apartment house, or business establishment, nor have we found any evidence in adjacent areas, such as the Upper Hill or the Duquesne University area, that new rat populations have moved in."



"Where yuh going . . . to a plague?"

MALRIN

REPORT

NUMBER 4

Malrin Now an All-Purpose Insecticide

FOR GENERAL P.C.O. WORK

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- Brown-Banded Cockroaches
- Oriental Cockroaches

- Ants
- Spiders
- Wasps
- Silverfish
- Earwigs
- Crickets
- Fleas

Spray or paint with hand or power equipment where insects are seen or hide. Treat such places as baseboards, inside cabinets, under sinks, drainboards, stoves, storage units, in cracks and crevices, behind shelves, in basements and attics and so forth. Most surfaces - including metal - so treated, will continue to kill these insects for several weeks. Treat thoroughly and repeat as necessary.

Clean and spray thoroughly to reach all hiding places. Clean and brush fallen articles. Hold sprayer 2 feet from articles sprayed so as to thoroughly moisten, paying particular attention to seams and folds. Allow sprayed articles to dry completely before using. Repeat applications every 30 days unless articles are stored in moth-tight containers previously cleaned and sprayed with the above mixture.

- Moths
- Carpet Beetles

Take beds, dressers and other furniture apart and thoroughly spray slats, springs and all cracks and crevices. Thoroughly spray entire mattresses, especially seams and tufts, and allow to dry completely before using. Spray all cracks and hiding places in rooms—behind woodwork, loose wallpaper, picture frames, molding. Repeat applications as necessary.

- Bedbugs

MALRIN is safe—the safest material with respect to man and warm-blooded animals available for the control of resistant roaches, fleas (inside and outside), houseflies, mosquitoes and many

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Pest Control magazine Celebrates First 25 Years of Industry Service This Month

With this issue, *Pest Control* marks its Silver Anniversary. It was 25 years ago, in January 1933, this magazine's forerunner *Exterminators Log* made its debut. Volume 1, No. 1 was a 16-page milestone in the early history of the structural pest control industry, and appropriately enough the page one editorial in that issue was titled, "At Last We Have It."

The story of *Pest Control's* growth in the past quarter century parallels that of the pest control industry. The success of one is reflected in the accomplishments of the other. But a truer measure of the magazine's progress is the effectiveness of its service to its readers and its leadership in promoting the industry's welfare.

Pest Control today is a far cry from its early ancestor, *Exterminators Log*, but its original goal, stated in the first issue, has been preserved and greatly expanded. Al Cossetta, this magazine's founder and first publisher, wrote in his introductory editorial:

"Up to the present time exterminating and fumigating concerns have been without a magazine of their own. As these concerns have been increasing throughout the land, many have felt the need of a magazine devoted entirely to fumigators and exterminators, which should prove interesting and valuable. They realize that through the magazine they can keep in touch with their fellowmen. New information would be obtainable, new methods would be discussed through its pages, which would be valuable to the business. So the purpose and object of the



From '33 through '57. This panorama of magazines, proceeding from Vol. 1, No. 1, January 1933 (bottom left) through Vol. 25, No. 12, December 1957 (bottom right), demonstrates the evolution in *Pest Control* magazine's cover designs in its first 25 years of publication.

Exterminators Log is to be devoted entirely to exterminators, fumigators and concerns that manufacture insecticides for the public."

Measles and Whooping Cough

The first few issues may have departed mildly from this theme with the appearance of editorials on "Checking Up on the Obese Patient's Diet," "Measles Versus Whooping Cough," and a series of epigrams by "Youth's Instructor," conspicuously unrelated to pest control, but there was enough technical material of the day to inspire a handful of

readers to begin supporting the magazine by paying for subscriptions. Circulation was initially on a free basis and in June 1933, in a notarized statement, Editor Cossetta claimed a distribution of "2,400 among exterminators, fumigators, chemical, disinfectant, and insecticide firms, and sanitary suppliers throughout the United States." At the end of its second year, the *Log* had 100 paid, loyal subscribers. Today, *Pest Control* mails to over 5,000 paid subscribers every month and the number is increasing each year.

The beginning was rough going



Exterminators Log headquarters for its first nine years was this Kansas City PCO office.



Magazine founder Al Cossetta, at desk, 1935.

for Mr. Cossetta, as he relates in an accompanying statement on page 31 written for this anniversary issue. Money was short, but the founder stuck to his convictions. Articles were difficult to obtain. It was an age of "secrecy." No exterminator would reveal to competitors his "secret formula" or his "exclusive scientifically developed" control methods.

One early article in the June 1933 issue was entitled, "The WET Rats," by C. H. Bedingfield, then of Getz Exterminators, Inc., Kansas City, Mo. He wrote of a small hotel he had serviced 20 years before. Rats and mice had been indulging over excessively in the proprietor's private liquor supply in the basement. Bedingfield solved the problem, but characteristic of the period, his solution was not passed on to other members of the industry in that article.

Some Sort of Ant

In July 1933, *Exterminators Log* published its first article by Dr. Thomas E. Snyder, world's top authority on termites. It was entitled, "The Founding of New Colonies by *Reticulitermes Flavipes* Kollar." Since then, he has contributed over 50 more articles, including 17 "Borer Lines" columns.

The need for Dr. Snyder's authoritative counsel in those

early years was significantly reflected in a story carried in the March 1934 issue. This one referred to a rivalry between two operators in Little Rock, Ark., who were trying to outbid each other for a city contract to rid the Capitol of termites. Author of the story described termites as "a sort of ant which causes no end of destruction."

Eliminate "Exterminator"

In September 1933, *Exterminators Log* launched one of its major campaigns "to eliminate 'exterminator' from the industry's lexicon and substitute a more suitable and descriptive appellation referring to the problems of sanitation, with which the industry is chiefly concerned."

However, it wasn't until 1937 that the term "pest control operator" came into general usage. In the January issue that year, an operator wrote, "We have never gone in for sub-titles (but) . . . in a recent program advertisement, I tried out the words 'Pest Control' to see what effect it might have. I am in favor of such a name because of its meaning and brevity."

Exterminators Log followed this up the next month with the comment, "Correspondence over the past year has especially shown the tendency toward the broader term of 'Pest Control'.

The words 'exterminators' and 'fumigators' are rapidly losing their appeal. There is something about these two words that does not give the proper picture of our industry."

Although the National Association of Exterminators and Fumigators changed its name to the National Pest Control Association, in August 1937, the industry was still looking for a suitable, one-word expression for exterminators and fumigators, and *Exterminators Log* was in the center of the huddle.

"The word 'exterminator' is not all-inclusive," the *Log* said in December 1937. "The public will and must refer to Pest Control Operators by means of a single word. The industry wants a 'natural' . . . a name euphonious and practical to help give to the science of vermine extermination a more dignified standing."

The magazine advertised a \$50 cash award to be paid to anyone suggesting a new acceptable name for "exterminator". Suggestions were addressed to Purdue University's Professor J. J. Davis, who, in turn, relayed them on to a six-man committee composed of industry representatives. And although 333 different names were submitted by 735 contestants, no one came up with a one-word title for "exterminator" that pleased the judges. Finally the abbreviated term, "PCO," suggested by

Professor H. O. Deay of Purdue University's Entomology Department, was selected. But he was given only \$25 of the award money. The rest was donated to Purdue.

In August of the following year, the *Log* changed its name to *PESTS*, and in June 1939, to *PESTS and Their Control*.

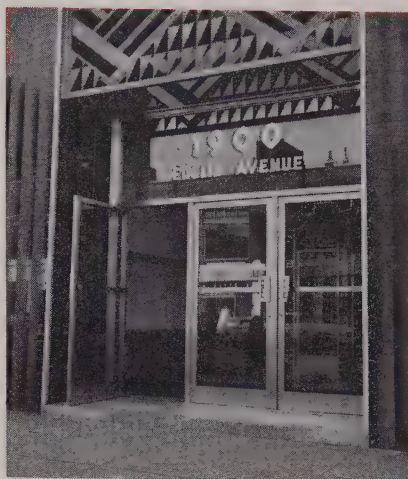
There was no national association for exterminators when *Exterminators Log* began, but a National Assn. of Exterminators and Fumigators was formed in October 1933. Its successor, the National Pest Control Association, will celebrate its own 25th anniversary in October when it holds its annual convention at Hotel Statler in Washington, D. C., the same city in which the association was founded.

Cossetta Was Exterminator

Exterminators Log, founded by Al Cossetta while he was an employee of National Extermination Products Co., in Kansas City, Mo., was edited from National's offices at 512 East 14th Street until April 1945 when the magazine moved to a larger office at 1200 Oak Street. It remained there until March 1948 when James A. Nelson acquired it and moved *PESTS and Their Control* to Cleveland. Today this publication's editorial and advertising headquarters occupy six offices at 1900 Euclid Avenue, an eight-story building in the heart of downtown Cleveland. Printing is done at its shop in Painesville, Ohio.

Under the ownership of Trade Magazines, Inc., president Nelson restated the magazine's aims in the April 1948 issue, his first:

"Under your new editor's guidance, *PESTS* plans to give you a broader coverage of the whole pest control field. You will find more extensive reports of latest control measures, of research by prominent entomologists, of government rulings, of opinions of leaders in our field, and of all other developments in the industry that might prove valuable . . .



Entrance to today's PC offices in Cleveland.

PESTS and Their Control will extend and broaden its field and as we develop our new plans and work together, it will become more valuable as your news and reference magazine."

The New Look of '48

With the April 1948 issue, the magazine adopted a larger page size. More pictures and a wider use of color enlivened the format. New, more readable type faces were selected and front cover illustrations replaced the advertising which had appeared in that spot for over a decade. In August 1949, the magazine's name was changed to *Pest Control*.

New List of "Firsts"

A number of additional "firsts" have been added to the magazine's history in the past ten years. *Pest Control* began pub-

lishing factual reports of regional conferences and national conventions. The industry's present standard for accounting procedures was sponsored through a magazine-financed investigation conducted in 1950 by a graduate of Harvard Business School. The first set of antidotes for pest control chemicals were provided in its January 1953 issue. Pictorial aids for the identification of pests by the damage they do were first published in *Pest Control*. It has taken the lead in promoting industry advertising, serviceman education, safety, equipment maintenance, and realistic pricing.

Recognition of termite control as a major segment of the industry's work was heralded by the beginning of a monthly section devoted to "Termites and Other Enemies of Wood" in July 1951. Another regular feature includes a special section called the "Business Forum." Monthly columns were added such as the Notebook, which covers tips and ideas from the field, and the Primer written for newcomers and as a refresher for old-timers. To tell readers where trouble spots are occurring in various sections of the country, *Pest Control* publishes a monthly Infestation Report.

With the March 1954 issue, *Pest Control* was selected to publish the U. S. Public Health Service's annual Communicable Disease Center recommendations for the use of pesticides of public health importance.

Present Policy

In its 25-year existence this magazine has published articles by over 1,000 different authorities who have written on chemicals, equipment, research and control procedures. *Pest Control*, while independent of the National Pest Control Association, has always worked closely with the NPCA to promote its goals and objectives and to urge membership support.

The magazine's policy is to provide a how-to-do-it, where-to-

RECORD OF NET PAID CIRCULATION GROWTH (6 month averages)

Provided by Standard Rate & Data
Service, national reference authority
on all publishing media

1938*	550	1948	1850
1939	550	1949	2235
1940	700	1950	2635
1941	750	1951	3176
1942	860	1952	3362
1943	805	1953	3787
1944	875	1954	4073
1945	1225	1955	4704
1946	1675	1956	4831
1947	1852	1957	5087

*No audited figures are available for the years from 1933 through 1937, but early books reveal *Exterminators Log* had 100 paid subscribers by the end of 1934.



PC's Editor and Publisher James A. Nelson.

buy-it monthly trade magazine for the urban and industrial pest control industry, honestly reflecting what its members are doing and thinking. Its purpose is to train pest control operators in the best approved methods known, to keep them informed of new developments, and to help them operate their businesses more efficiently. It refuses to recognize any contention there are secrets that must be guarded only for a privileged few.

In 1956 *Pest Control* was selected by members of the advertising and publishing professions to receive their Award of Merit for Editorial Excellence in the class of Institutional and Professional Papers.

Each year, readers of *Pest Control* are provided more pages of useful editorial material. In 1933 the average issue contained 16 pages, and the total number for that year was 180 pages. The 12 issues which make up the 1957 volume contain a total of 780 pages, with an average of 65 per monthly copy. Paid circulation has grown from 1,850 in 1948 to over 5,087 in 1957.

A constantly growing number of suppliers to the industry are using the advertising pages of *Pest Control* to solicit profitable business from the community and structural insect and rodent control market. Their support has made it possible to keep domestic subscription rates at

\$5.00 for one year, or \$8.00 for two, even though actual publishing costs presently exceed \$18.00 per subscription per year.

PC's publisher Nelson has not only "grown up" in the insecticide field, but is also trained in journalism, promotion and printing. His father, Henry A. Nelson, had been in the insecticide manufacturing business for 30 years and served as president of the Chemical Specialties Manufacturers Association. Jim Nelson, who ran a printing business during high school and college, worked on high school and college papers and on a small town weekly. His post college training includes graduate study in art and advertising and three years association with one of the country's largest industrial advertising agencies, Fuller & Smith & Ross, Inc., where he worked on insecticide accounts. He used this background to bring a "new look" to this already well-established trade journal.

Other executive staff positions of the magazine in Cleveland are

held by Philip B. Osborne, assistant editor, R. J. Hoffer, circulation manager, Richard G. Farrell, in charge of Mid-West advertising, and Harry Hardy, credit manager. Theodore Riedenburg is in charge of the East Coast advertising office and James E. Munford heads advertising on the West Coast.

Pest Control has been and will continue to be determined in its efforts to enrich the \$350,000,000 industry it serves by leading in and promoting industry reforms and progress. It constantly encourages the free exchange of ideas by its readers and by qualified authorities. It continually sponsors industry research by its own staff and helps finance research by other agencies.

Growth in the next quarter century will come as the pest control industry develops even further than it has thus far. *Pest Control* magazine expects to grow with it by keeping pace and by providing more service than it has in its first 25 years.



Executive staff positions on *Pest Control* are held by R. J. Hoffer, seated, circulation manager; and, standing left and right, Richard G. Farrell, who handles Mid-West advertising and Philip B. Osborne, assistant editor. Other key staffers include East and West Coast advertising representatives in addition to Editor and Publisher Nelson, pictured upper left of page.

"I was told I would lose my shirt!"

a statement by
AL COSSETTA
founder of Exterminators Log

As I do some reminiscing about the early, stormy years of *Pest Control*, I find it impossible to relate all the details. Starting the *Exterminators Log*, as it was first called, was not just an accident or just another venture.

One night, endeavoring to sleep but really pondering my business problems, I tried to find ways to increase my income and future business. I had been associated with the National Extermination Products Company in Kansas City since 1924 and was inspired with the thought that I should start a national journal for the pest control industry. The following morning at the office I made my plans known and immediately started to shape up a letter to be mailed to all possible prospects.

I was told that I would lose my shirt if I were foolish enough to attempt to put out a publication for this industry. It was pointed out better men than I, men with more experience and a wider knowledge of the field, dared not to venture such a task considering the risk. They lost no time stressing the fact that if there were possibilities, these men would have had a publication long before I ever thought of one. However, I sensed a great need and felt I would not fail.

After several months, I must confess, at times I had the feeling I would lose my shirt and everything that went with it.

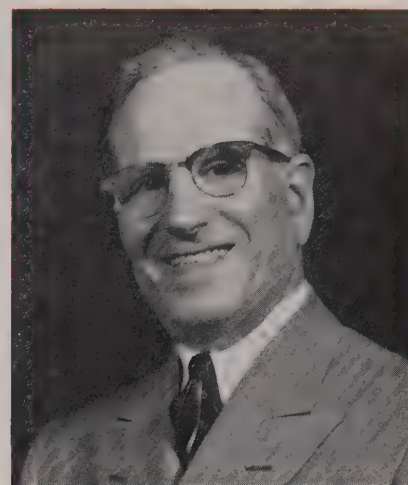
As many old-timers of the industry know, I am a profound believer in Divine Guidance. Had it not been for this, there would

not have been an *Exterminators Log* in the first place. My first issue, dated January 1933, was mailed to all the exterminating firms I could get the names of. Several months later, the *Log* sounded the Clarion Call for exterminators to organize and in October of that year the National Association of Exterminators and Fumigators (now the National Pest Control Association) was formed.

My printer, John W. Smith who operated the Stock Yards Printing Company, was a true friend in those trying times. Days when the printer was carrying such a tremendous load, he was at a loss to know what to do, but each month, somehow, we managed to have the paper out. Mr. Smith died in 1939, but under his wife's management Stockyards Printing continued to print the magazine until it was sold and moved to Cleveland, Ohio.

The *Log* was started at National Extermination's office at 514 East 14th in Kansas City as a sideline. I remained with National until 1945 when I moved the magazine to the Oak Street Building at 12th and Oak.

In March 1948, the magazine which I had founded was purchased by your present editor and publisher, James A. Nelson, and moved to Cleveland. Since then, under his supervision and guidance, the magazine has grown beyond my greatest expectations. About one year later, Jim Nelson re-christened the magazine and registered the August 1949 issue as *Pest Control*.



Mr. Cossetta, since retiring from the trade paper publishing business in 1948, has been a real estate broker, church worker and public speaker. He is the author of two books, "Natural Gestures and Postures in Speech" (1946) and "How I Found Success" (1953). Those who attended early conventions of the pest control industry will remember Mr. Cossetta's ready willingness to provide a vocal solo with his voice that had an unforgettable quality. Today he lives at 3930 Benton Boulevard, Kansas City 30, Mo.

It is now recognized as one of the top-notch trade magazines in the whole country. Naturally I am very proud of this achievement. What founder wouldn't be?

I would be remiss not to mention our late and good friend, the hard-working William O. "Bill" Buettner, first president and secretary of the NPCA; Max Rosenthal, my New York advertising representative; and the PCOs' most beloved and loyal friend, Professor J. J. Davis of Purdue University. These devoted friends played a tremendous and outstanding part in making the publication the success it now is. They contributed much when it was beginning to grow, always striving to help make the magazine better.

My best wishes to *Pest Control* for continued success and growth, to the PCOs who support their industry's publication, and to their national association. PCOs have every reason to look forward to a more prosperous and better pest control industry than ever before.

Congratulatory Letters to the Editor from Heads of

Government Agencies . . .

Our entire staff joins in congratulating Pest Control magazine on the occasion of its Silver Jubilee! During the past 25 years this journal has enjoyed a tremendous growth in every respect and has attained an enviable stature as a publication medium for both trade and technical information. I am sure this has contributed very significantly to the rapid progress of the pest control industry in the United States in recent years.

We extend our very best wishes to you and the other members of the editorial staff of Pest Control magazine for continued success and progress toward your goal of industry improvement.

Kenneth D. Quarterman

Chief
Technical Development Laboratories
Communicable Disease Center
U. S. Public Health Service
Savannah, Ga.

The fact that Pest Control has been in existence for 25 years is in itself evidence of the success of your publication. However, it does not indicate the magnitude of the growth of the publication or of its great service to the pest control industry and through it to the general public. Certainly, it does not indicate the prominent part it has served in disseminating current research information. These are tangible accomplishments which deserve mention and for which Pest Control can rightly be proud.

Our Branch is especially proud of our long and close cooperation with Pest Control. You have encouraged us to conduct certain lines of research which you knew would be of value to the general public and the pest control industry. Moreover, you have published our results much sooner than we could normally expect. Early publication of research results has been a service to the pest control industry and has, of course, been helpful to us.

May we once again express our appreciation for the service Pest Control has rendered and is rendering. We have no doubt that the magazine will continue to fulfill its mission and to prosper throughout all the years to come.

A. W. Lindquist

Chief
Insects Affecting Man and Animals
Research Branch
Entomology Research Division
Agricultural Research Service,
U. S. Department of Agriculture
Beltsville, Md.

Pest Control magazine has rendered invaluable service to the industry and the general public during its first 25 years of publication. As a medium for the dissemination of technical information on pest control procedures, it has helped the

professional operator to do a better job. Indirectly, this has saved many millions of dollars in the prevention of economic losses caused by insects and rodents, plus an unknown number of human lives that might otherwise have been lost to animal-borne diseases.

By keeping pest control workers abreast of these developments, your magazine will render still further service to the industry and nation during the coming years. Congratulations and best wishes.

Walter W. Dykstra

Assistant to the Chief
Branch of Predator and Rodent Control
Fish and Wildlife Service
U. S. Department of the Interior
Washington, D. C.

The publisher and editors of Pest Control may well be proud of the service they have and are rendering to the public through the timely informative material relating to pest control problems published each month. I am pleased to join many others interested in the pest control industry in extending congratulations to you on your 25th anniversary.

Your magazine serves as a medium for translating basic technical information into technical application by those engaged in pest control activities. It also aids research workers who are in a better position to direct their efforts into needed areas of investigation as the result of a better understanding of the practical problems.

By keeping those engaged in pest control activities informed of developments, you have contributed materially to the achievement in this country of health and sanitation standards not exceeded by any other nation. The public will demand higher and higher standards in the years ahead. The need for accurate and timely reporting on pest control problems will, therefore, continue.

You, Jim, and your staff may well look forward to continued growth and greater service to the industry.

E. F. Knipling

Director
Entomology Research Division,
Agricultural Research Service
U. S. Department of Agriculture
Beltsville, Md.

Universities . . .

On this 25th anniversary of Pest Control magazine, I should like to extend the congratulations of the Entomology Department of the University of California at Los Angeles. Pest Control has effectively provided entomologists with an insight into the practical problems of the structural and household pest control industry, on a nation-wide basis, as well as the solutions to these problems as they have evolved from the experience of the industry and the all-too-limited research programs

that have been developed by private and governmental agencies. In doing so, it has filled a unique and important place in entomological literature.

We wish to extend our best wishes for the continued success and growth of your excellent and much-appreciated magazine.

Walter Ebeling

Professor of Entomology
University of California
Los Angeles.

I have noted with great interest that Pest Control magazine is to celebrate its Silver Anniversary during January of 1958. I wish to extend to you my personal and professional congratulations upon the eminent success of this magazine.

The unquestioned success in advancing this industry to its present professional status has been due to officers of the National Pest Control Association and the many state, regional, and local pest control organizations. It has also been due in great part to the fact that this industry has a national medium in which pertinent information could be supplied together with the aims and aspirations of this industry. This medium has been Pest Control magazine and its predecessors. I feel Pest Control has now reached a point of excellence that is in keeping with any professional magazine in this country.

John T. Creighton

Head, Department of Entomology
University of Florida
Gainesville

"Pest Control every month since 1933," your table of contents banner line, serves as a reminder that your 25th anniversary is close at hand, and I hasten to join your many friends and admirers who will, I am sure, be extending well deserved congratulations galore.

I would like to think of this joyous occasion as the Silver Wedding Anniversary of a remarkable couple—a trade journal and an industry who married young when both were a bit giddy, frivolous and unpredictable, and have grown in stature and dignity together until today in their more mature days each can hold its head high while basking in the reflected glory of the other's outstanding accomplishments.

Perhaps at times your mate may not adequately expound your attributes, but we all know that deep down inside she fully appreciates all that you have contributed to her success. Even though neither she nor I nor anyone else can spell these values out in concrete terms, we all know the splendid balance of your editorials, technical articles (scientific, sociological, and economic) and worthy trade news has been the lifeblood of the industry and a powerful stimulant to those of us outside the industry who because of our

Government Agencies, Universities, Associations, and...

mutual interests and problems might be regarded as friends or neighbors of the happy couple.

George C. Decker

Entomologist and Head
Section of Economic Entomology
State Natural History Survey Division
Urbana, Ill.

On this occasion of the celebration of the first 25 years of Pest Control magazine, it seems fitting that congratulations for things accomplished and wishes for future and continued success are in order.

There is no more accurate measure of success of a publication of this nature than its distribution and number of voluntary subscribers. The dedicated, enlightened determination of its editors from the date of its coming into the pest control operators' field might also be figured.

For many years, as director of the Southern PCOs' Conference, I have been a constant reader and occasional contributor to Pest Control. I have observed with interest its steady growth and influence on the membership of the pest control industry. It is my belief that all successful industries require or demand the publication of a good trade journal which aids and unifies the progress of that industry.

You have my best wishes for your continued growth and advancement of the industry.

O. W. Rosewall

Professor of Entomology
Louisiana State University
Baton Rouge

The influence Pest Control has had upon the industry and upon all of the associated institutions has been profound, and Al Cossetta and James A. Nelson deserve every possible credit for having furthered the work of the National Pest Control Association in the manner that has been done. We extend our best wishes for the future of this important magazine.

Charles P. Alexander

Head, Department of Entomology
University of Massachusetts
Amherst

It's a real pleasure to write to Pest Control on its Silver Jubilee. The growth of this magazine reflects the growth of the industry. It is significant that the publication should have been started by a PCO, because in the early days the men of this industry had to start small with courage, conviction, and a willingness to try things that might be worthwhile. This magazine has certainly done the latter.

I am especially interested in the last 10 years and would like to recognize a diamond anniversary. Editor Jim, you have done wonders for Pest Control, and it is also significant that you have contributed much to pest control as a growing

industry. Just as the industry has called upon technical men to guide its ascent towards a profession, the magazine has prospered under the direction of a trained journalist. I might add that you and your magazine have been commendably proficient in entomology and the technical aspects of pest control.

Pest Control is the voice of the industry. It presents a good balance of technical and practical articles; it has been educational in the field of business methods. Most important, it has provided pest control operators and technical people alike with up-to-date, constructive information in a pleasant, understandable, and timely manner. May progress continue to be your standard.

John V. Osmun

Head, Department of Entomology
Purdue University
Lafayette, Ind.

May I congratulate you on the Silver Anniversary of Pest Control. First, I would like to congratulate Al Cossetta who foresaw the possibilities of commercial pest control and with little help established the magazine which has become the spokesman of the pest control industry. And may I congratulate you for your foresight in taking over the publication and making it one of the outstanding industrial publications in the country.

The industry owes you much applause for your interest and for what you have done to aid and promote the increasingly important industry and profession of pest control. Without your interest, and providing a journal which is a high tribute to the pest control industry, we could not have the standards which are generally recognized.

Best wishes for a happy anniversary and a long and successful future.

J. J. Davis

Professor Emeritus
Department of Entomology
Purdue University
Lafayette, Ind.

Associations . . .

On behalf of the National Pest Control Association, we wish to extend to Pest Control our hearty and sincere congratulations on its 25th birthday. Although our Board of Directors has directed these greetings, we know that it is the desire of every member that we extend every good wish to Pest Control, and to you, as its editor, at this time.

The contributions of your publication through its metamorphosis from the Exterminators Log, through Pests and Their Control to the current Pest Control, have been valuable assets in the development of the pest control industry of today. Your personal role in guiding the developments of recent years has

been significantly outstanding, and your work is widely appreciated. May we commend you on the many valuable features of your publication. We wish for you continued years of progress, and we hope for the same honest awareness of the values of our industry, and its needs.

The National Pest Control Association congratulates both Pest Control and you on this Silver Anniversary.

Ralph E. Heal

Executive Secretary
National Pest Control Association
Elizabeth, N. J.

January 1958 marks the Silver Anniversary of Pest Control. It is obvious that this magazine has filled and is continuing to fill a definite need—and doing it well.

The Entomological Society of America is proud to count among its members a great many pest control operators—and the editor of Pest Control.

We should like to take this opportunity to extend the congratulations of the Society to Pest Control on its 25th birthday and to those who have made the birthday possible.

R. H. Nelson

Executive Secretary
Entomological Society of America
Washington, D. C.

Congratulations on the 25th birthday of Pest Control magazine!

We have watched it grow in circulation as well as in editorial value and content. We feel that you have done a fine job with your publication and wish you continued success in your endeavors.

Leo J. Kelly

Executive Vice President
National Sanitary Supply Assn.
Chicago, Ill.

It seems but yesterday that you became Editor and Publisher of Pest Control. Those of us who have been interested in sanitation and the related problems of pest control for nearly 40 years realize that in the short space of ten years, you have developed the magazine Pest Control into an institution.

The valuable, down to earth character of the magazine Pest Control is doing a public service of tremendous value. The factual editorial policies promote confidence and progress.

In your daily tasks of carrying on the work with the magazine, you have always found the time to be of assistance to the Chemical Specialties Manufacturers Assn.

The progress you have made has earned you a well-deserved continuing development and increasing prosperity for many a decade to come.

H. W. Hamilton

Secretary
Chemical Specialties Manufacturers Assn.
New York, N. Y.

Letters from National Pest Control Assn. Past Presidents, Friends

Greetings on your 25th birthday! Well do I remember the very first edition, which certainly was crude compared with Pest Control as we know it today. I have in my possession copies of every edition since that humble beginning.

As the industry has grown and developed, so too has Pest Control. In fact, I like to think of the magazine as doing for the industry what yeast does for dough. As it "leavens the loaf," so you silently bring about fundamental changes in our procedures.

Pest Control furnishes that indescribable something which cannot be weighed or measured, but is so important. Your articles are timely and helpful.

May the next 25 years see both Pest Control and the industry grow and develop to the end that we both may serve our customers better.

C. Norman Dold

Rose Exterminator Co.
Chicago, Ill.

It made me very happy to learn that you are to celebrate your 25th year of publication. It so happens that I am one of those who received the first issue and every issue since then if my memory is correct. Certainly it has been a happy experience to have followed the progress of your magazine and the pest control industry that you have served so well.

Al Cossetta was truly pioneering in those days, and we must doff our hats to him for the spirit that he breathed into that venture.

The past ten years under your editorship have passed so quickly that I can hardly believe they are gone until I think of all that has transpired under your direction.

You can well be proud of your magazine; we are well pleased with each issue and look forward to seeing it come to our desk. Best wishes for another 25 years, at least!

H. K. Steckel

The Tornado Manufacturing Co.
Columbus, O.

Little did we realize that when Exterminators Log was started in 1933 it was to play such an important part in the dissemination of pest control knowledge. You have a good record and are source of valuable information for our industry.

I wish to extend our heartiest congratulations and best wishes for continued success.

F. E. Bohman

Birchard System, Inc.
Hartford, Conn.

Pest Control magazine merits richly the felicitations of the pest control industry.

Where is there another publication and industry so solidly fused?

Facing many of the same problems and challenges, their roads have been remarkably parallel. Even the early limitations and crudities of both served as a sympathetic and lasting bond.

The magazine has attained standards of quality, dignity, and appearance which the industry it serves may envy.

George R. Elliot

Ransford Pest Control, Inc.
Worcester, Mass.

For anyone to write in any manner about Pest Control he must go back to the earlier years of not only the magazine, but also of the NPCA. As I look back over the years, I cannot help but feel that Pest Control

and the NPCA are twins. They were born together, and they have grown up together. While each can be proud of its own growth, there is no question as to the contribution of Pest Control to the growth of the NPCA.

Pest Control is the "letter from home" that you look forward to each month. Pest Control throughout the years has been a medium of immeasurable good for the entire industry, and there can never be any question in my mind as to the important roll the magazine played in helping to develop the industry.

The pest control industry owes Pest Control its sincere gratitude for its accomplishments and may the next 25 years be as good as the last 25. Hearty congratulations on a quarter of a century of service.

Theodore Oser

Oser Pest Control, Inc.
Atlanta, Ga.

Congratulations on your Silver Anniversary. May you continue to grow through the years.

J. Harvey Sturgeon

Sturgeon Pest Control
Louisville, Ky.

By a coincidence, this is the 25th year of the Sentinel Laboratory, as well as of Pest Control magazine.

One of the really enduring satisfactions of life is to aid in the growth and development of something worthwhile, be it a child, a tree, or an industry.

Certainly your work has been tremendously valuable in the growth of the pest control industry and I hope you have enjoyed the satisfaction you richly deserve.

My hearty congratulations and may you enjoy the same satisfaction for many years to come.

G. L. Hockenyos

Sentinel Laboratory
Springfield, Ill.

Twenty-five years ago "Extermination" was a "Killing" business. Today the industry has acquired proper recognition for its extension of life and property by "Preventive" measures.

This recognition has been made possible by increased knowledge of the problems and their solution. Your ability to gather pertinent information and interestingly present it through your magazine Pest Control has accelerated that recognition. Your efforts are appreciated by the industry.

V. H. Montgomery

Montgomery Pest Control Co.
San Francisco, Calif.

You could not put it better than to say Pest Control magazine and the pest control industry have grown, step by step, together during these past 25 years.

In fact, Jim, all of us who make our living in the pest control field owe to you and your staff a debt of gratitude for not only the coopera-



Resolution

Adopted by members of the
NATIONAL PEST CONTROL ASSOCIATION
at their 24th annual convention,
Louisville, Kentucky, October 24, 1957

"Resolved . . .

that we congratulate PEST CONTROL magazine and its Editor and Publisher, James A. Nelson, on their approaching Twenty-Fifth Anniversary in January 1958, and that the cooperation between this Association and the journal of the industry be continued and ever expanded during the coming years."

tion you have extended, but for the very complete coverage of the many new developments that are affecting our businesses.

Wishing you continued success is like patting one's self on the back, because when you do well, we should also.

Our very best to Pest Control magazine in your undertakings to make the next 25 years bigger and better ones for all who compose a part in this industry.

J. Edwin Sameth

Western Exterminating Co., Inc.
Newark, N. J.

When husband and wife are married for 25 years, they are certainly entitled to a celebration. There is every reason, therefore, why a trade magazine which has served an industry for 25 well-filled years should announce its Silver Anniversary and celebrate it.

It is certainly our wish to be numbered among those who can offer their congratulations at this time for not only reporting important events affecting our industry but for publishing each and every article and paper you felt worthy of pest control operators' attention. In addition, we appreciate your continuing to express your editorial opinion as you see it through the eyes of the industry with which you keep in constant contact.

Although it may seem strange to mention the so-called "commercials", we also think you are to be commended for the high type advertising you carry in Pest Control and the readable manner in which it is presented.

It is a pleasure and a privilege to extend our hands in congratulations on this Silver Anniversary of Pest Control.

Robert C. Yeager

Rose Exterminator Co.
Cincinnati, O.

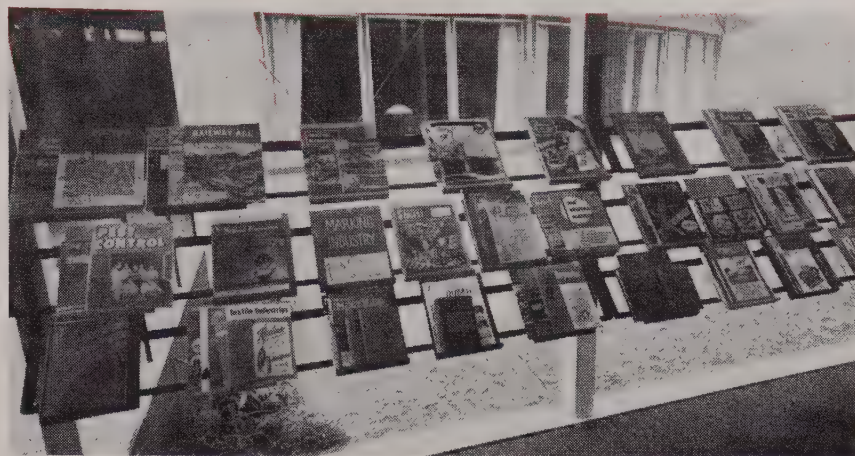
Congratulations to you and to Pest Control magazine for a quarter of a century of invaluable service to the pest control industry.

I well remember the meager beginnings of your predecessor, Exterminators Log, and the untiring efforts of Al Cossetta in keeping the magazine going in those early days. He deserves a great deal of credit for this effort. However, as I look back over the years, I cannot help but marvel at the strides Pest Control magazine has made under your leadership.

From every standpoint, Pest Control is outstanding among trade magazines. Your articles and editorials are alive with dependable information of real value to every PCO, large or small. They reflect your sincere interest in our industry and provide your readers with facts highly essential to the successful operation of their business.

A. E. Ritt

Vogel-Ritt, Inc.
Philadelphia, Pa.



One of America's leading trade magazines, Pest Control (second row, left) was included in an exposition at the Information Center of the U. S. Trade Mission during a recent International Trade Fair in Hannover, Germany. Time International took the above picture which shows part of the display of some 700 top U. S. trade and industrial magazines. They enabled the Trade Mission to give information about U. S. business to visiting businessmen from 40 countries.

Congratulations on reaching your Silver Anniversary.

Pest Control has done an exceptionally fine job of acting as clearing house for industry problems. The general broad scope of coverage and wide selection of subject matter continue to put it on the "best read" list in our organization.

As a member of the National Pest Control Association, I feel you are to be commended for your efforts in publicizing and promoting Association affairs.

All in all, thanks for being around.

Harlem B. Ives

Rose Exterminator Co.
Detroit, Mich.

I have often felt like complimenting you on the fine progress your excellent magazine Pest Control has made over the years, but like many other things, I needed a special occasion to spur me into actually writing. It is wonderful to know that this type of periodical would have over 5,000 readers throughout the world. Surely you have had to do some very careful planning to present material that had reader appeal to accomplish this.

Your Silver Jubilee is an event for which I think you should be complimented because you have developed the knack for keeping pace with both industry and public demand and have given your readers information in sufficiently non-technical terms to be readily understood by the layman as well as scientist.

I always find your editorials stimulating and timely, and I enjoy and find very informative, your entire magazine.

My most hearty wishes to you and your staff.

I. B. Carncross

Syracuse Chemical Co.
Syracuse, N. Y.

And Industry Leaders . . .

The Silver Anniversary of your publication, Pest Control, must bring satisfaction that you can enjoy with a feeling of personal pride. I wish to add my best personal congratulations to those which I know you must have received from many in the pest control industry.

I want to take this opportunity to thank you for the many personal considerations which you have shown me over the past eight years. Your recognition of many of our mutual goals has been helpful to me, and I have a true appreciation of the co-operation which you have given our National Pest Control Association. I cannot help but consider this co-operation as a measure of your personal assistance.

Ralph E. Heal

Elizabeth, N. J.

It is with great pleasure that I congratulate you and your valued magazine Pest Control on your 25th or Silver Anniversary. Like the pest control industry, Pest Control has made great forward strides in the past 25 years. The industry is one with a college education and is daily becoming more respected. Pest Control has grown side by side with the pest control industry and by its timely articles has contributed to its growth.

Personally, I have profited by your up-to-date data on the progress of the industry. Many of the articles in Pest Control have been listed by subject in my 1956 termite bibliography, and I am continuing to list them in the supplement 1955-1960 which will appear in 1961.

My own first article appeared in the original Exterminators Log in July of 1933, and I am continuing to contribute. Best wishes for your Silver Jubilee and continued success.

Thomas E. Snyder

Washington, D. C.

Demonstration of Slab-Treating

Brings 120 to Texas PCA Convention

Neither rain, nor snow, nor mud kept a busload of 50 delegates from an excursion into two of Dallas' new housing developments to witness practical field demonstrations of termite control methods for slab construction that were part of the Texas Pest Control Association's 13th annual convention program.

More than 120 registered for the three-day meeting headquartered at the Baker Hotel, November 21-23. Even though temperature and humidity conditions could not have been much worse, nearly half of the PCOs stood in muck and a mixture of light snow and rain to watch representative operators show how they provide pre-construction soil treatment for termites, and termite treatment of existing slab construction.

A one-level monolithic concrete slab home in suburban Grand Prairie was treated by William J. Spitz and members of one crew from his Big State Exterminating Co. in Houston. Holes 1-1/8 inches in diameter were drilled about 6 inches from the top of the slab. These were spaced 6 feet apart around the entire perimeter of the house which enclosed about 1,000 square feet of soil surface. A hammer-drill, powered by a B & G compressor parked in the driveway, was used to bore through the concrete. Chemical flowed through 20 feet of 1/2 inch ID Neoprene hose connected to a dual 100-gallon tank - Hypo pump unit mounted on a pick-up truck parked at the curb. About 1600 gallons of .025% chlordane emulsion were used to treat the under-slab area.

The insecticide was injected beneath the slab through a 20-foot long, 1/4-inch ID galvanized pipe, pinched at the end to give a fan-shaped pattern to the liquid as it was applied to the earth at approximately 4 to 5 gallons per minute and at about 70 lbs. pressure. A cone-shaped Neoprene stopper, through which the pipe had been inserted, fitted snugly into the holes that had been drilled into the concrete to keep the fluid from coming out. Chemical was pumped onto the sub-slab soil as the pipe was slowly introduced through the founda-

tion wall until the entire length had been pushed in each hole. Spitz said this technique gave his chemical a lateral spread of at least 3 feet on either side of the pipe. Since the house was less than 40 feet deep, the whole area was easily covered as the pipe was injected through all four sides of the foundation. Spitz reported it normally takes one man a day to drill the holes and another day to apply the chemical for a house of this size. Two men, working together—one drilling and the other pumping chemical—can do the job in 8 hours, he said.

At an Arlington development where slab homes in the \$9,000 class were under construction, Clayton Wright, of C. Wright Associates, Dallas, demonstrated the application of .5% dieldrin emulsion to the fill and trenches inside wooden form boards prior to pouring of a monolithic slab. Steel reinforcement rods had already been laid on the rock fill and all utility lines were in. Ditches inside the form boards and trenches across from one side to the other were the forms for

bearing walls when the concrete was poured. He used a street-side BiG sprayer, with No. 14 GunJet Spray Gun at the end of a long polyethylene hose, to apply a total of 377 gallons of the dieldrin emulsion at the rate of 2 gallons per 10 square feet on "uncritical" areas, and 4 gallons per 5 square feet in trenches inside the perimeter, around plumbing, where the fireplace was to be, and about door areas. Rate of application was at 10 gallons per minute at 500 lbs. pressure.

Wright said he was using about double the recommended dosage to treat this unit which had approximately 140 lineal feet and 1200 square feet because he felt construction methods used were not of high quality. After the house is up, and shrubbery is planted, Wright returns to apply 2 gallons of the chemical per 5 lineal feet by rodding to the depth of bearing walls around the exterior.

Chairman for these field demonstrations was J. C. Redd, president of the National Pest Control Association and of his Redd Pest Control in Gulfport, Miss. Working with him, besides Spitz and Wright, were Dr. John V. Osmun, department of entomology head from Purdue University; James M. Price of Oliver

(Continued on page 49)



PCOs lunch with exclusive Bonehead Club of Dallas. Texas PCA delegates were guests at a luncheon staged by this club of 25 wealthy Texans who delight in ridiculing everything. At the head table were (left to right) a Bonehead; Col. E. O. Stroube, TPCA executive secretary; two unidentified Boneheads; R. L. Showalter, NPCA ass't. executive secretary; TPCA president Oliver Goldsmith from Waco; and convention chairman, Dr. C. A. Trimbo, Protex Service, Dallas. Bonehead members would not reveal their names. Horseplay prevailed. Termites were in the butter; mice and flies on Bonehead's clothing. As part of the pre-arranged program, everyone walked out as President Goldsmith began his address to PCOs at this luncheon!

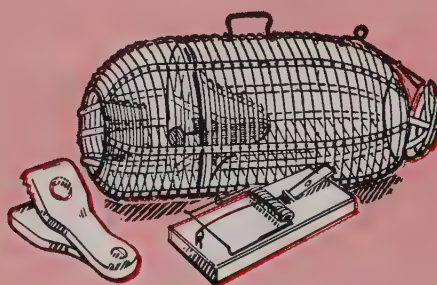
Traps and cats and Ralph Waldo Emerson



Emerson said:

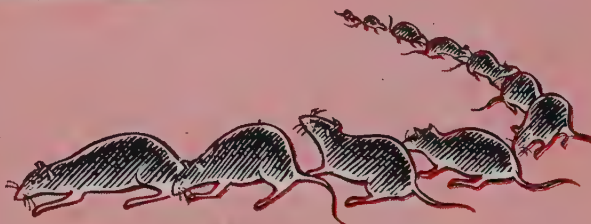
"Build a better mouse trap, and the world will beat a path to your door."

but in spite of traps



and even with cats

the paths were beaten
by the rats



until **warfarin** and the **P.C.O.—**

Warfarin, the first anti-coagulant rat and mouse killer, has proven its effectiveness for the P.C.O. . . . proven it from the very first day it was discovered at the University of Wisconsin, and developed by the Wisconsin Alumni Research Foundation. For sure results, use warfarin baits, the rodenticide perfected by research, proven in use.

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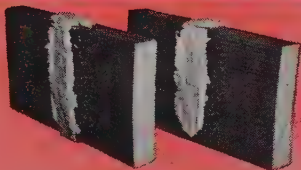
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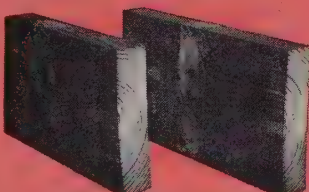
Signed.....



WOODTREAT-TC



Southern Yellow Pine penetration test shows WOODTREAT-TC on first day of application.



Four days later. Note diffusion of Penta and oil from point of application to end of plank. Dried crust is almost ready to flake off or be brushed off.



Cross section of above boards at point of application. Penta has made almost complete penetration in 4 days!

Hundreds of PCO's are already calling new WOODTREAT-TC the greatest advance in years for controlling termites, wood borers and decay!

Results as well as user acceptance are phenomenal. This patented paste-like oil-in-water emulsion—containing 10% Penta by weight—is quickly, easily applied by brush or paddle. Held in suspension until deeply absorbed in the wood, the Penta penetration is equal to 20 brush coats of 5% Penta—retention is 6 to 11 times greater than with brush-applied liquid formulas!

Try WOODTREAT-TC at our expense. It's the fastest growing anti-termite product in the industry—and the most profitable! Mail the coupon now for your FREE SAMPLE.



7½-Lb. (1 Gallon) open top cans
39-Lb. (5 Gallon) open top drums
225-Lb. (30-Gallon) open top drums

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5137 SOUTHWEST AVENUE
ST. LOUIS 10, MISSOURI



Control of Lyctus Powder-Post Beetles In Lumber Yards and Processing Plants

by H. R. JOHNSTON,¹ R. H. SMITH,² and R. A. St. GEORGE³
Forest Service, U.S. Department of Agriculture

Lyctus powder-post beetles attack and extensively damage products made from the sapwood of various species of hardwoods. Ring-porous woods are much more subject to attack than diffuse-porous species. Oak, hickory, and ash are particularly susceptible. Lyctus damage is common in hardwood lumber (especially if stored more than a year), in interior woodwork of buildings, in furniture, tool handles, pallets, tent stakes, mallets, mauls, and many other stored hardwood products, particularly where the wood is left unfinished until it is placed on the market. Lyctus beetles do not attack coniferous wood nor the heartwood of hardwoods; however, there are other groups of powder-post beetles which attack both pine and hardwoods.

Extensive investigations of Lyctus have been in progress since 1946 at Beltsville, Md., and Gulfport, Miss. These studies have shown that losses can be reduced substantially. This article describes briefly the life history and habits of the beetles and outlines methods of prevention and control.

Life History and Habits

Although the many different species of Lyctus vary somewhat in seasonal history, there is a general similarity in their behavior. The adult beetles are slender, somewhat flattened, brownish to black, and about one-quarter inch long. They lay eggs in the pores of the wood just beneath the surface. Eggs hatch within a few days, and the

minute larvae or grubs burrow through the wood. The galleries or burrows are parallel with the grain of the wood and filled with fine, powdery boring dust.

Full-grown larvae are yellowish white, and range from about one-eighth to one-fifth of an inch in length. Three to nine months are required for their development, depending on the beetle species and source of food. When wood is infested the first time, there is usually little external evidence of attack even though the larvae may be causing extensive internal damage.

When almost full grown, the larvae reveal their presence by cutting circular holes about one-sixteenth to one-eighth inch in diameter to the surface of the wood and pushing the flour-like powder out through the holes. The mature larvae change to pupae, and after a few days in this resting stage become adult beetles. The adults then emerge through the holes cut by the larvae, and start a new cycle.

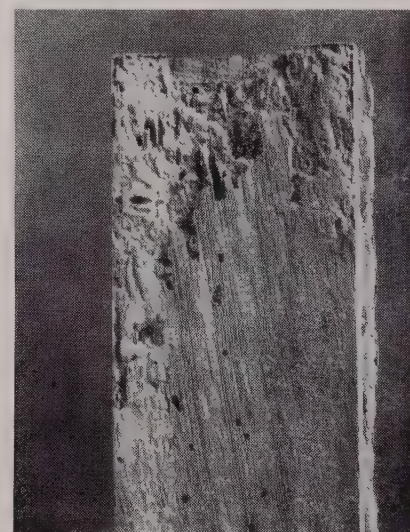
There are many species of Lyctus beetles in the United States, but *L. parallelipedus* and *L. planicollis* are by far the most common. Normally, the life cycle of the velvety Lyctus (*L. parallelipedus*) is completed in three to four months, with two generations each year. Usually there is only one generation of the southern Lyctus (*L. planicollis*) each year, but under certain conditions a short cycle may be completed in three to four months. As a rule, heaviest emergence (and egg-laying) occurs during late winter or early spring, but when there is a short cycle the beetles appear again in July. Both species pass the winter in the larval stage.

Preventive Measures

Green hardwood lumber products are not damaged by Lyctus



Adult *Lyctus planicollis*, pictured above about 16 times its normal size, is one of most common Lyctus species in U.S.



Oak flooring shown above was damaged by Lyctus powder-post beetles. Note the characteristic holes, powdery wood texture.

when freshly cut but often are attacked while still in drying yards. Attacks during normal storage periods can be prevented by dipping rough green lumber for ten seconds in a cold-water emulsion containing either 5% DDT or 0.5% gamma isomer of benzene hexachloride. These formulations can be combined with commonly used sapstain preventives, so that one trip through a dipping vat will protect green lumber against both stain and beetles. This is a surface treatment, however; another treatment is needed after the wood is planed.

For dry hardwood products, a concentration of 5% DDT, 5% toxaphene, 2% chlordane, or 0.5% lindane in a light fuel oil, mineral spirits, or a refined kerosene oil (deobase or ultrasene) will prevent attack for at least

¹ Southern Forest Experiment Station, Forest Insect Laboratory, Gulfport, Mississippi.

² Southeastern Forest Experiment Station, Lake City Research Center, Lake City, Florida (formerly with Beltsville Forest Insect Laboratory).

³ Beltsville Forest Insect Laboratory, Beltsville, Maryland.

five years and probably longer. The solution should be applied as a three-minute cold dip to seasoned unfinished rough products, or to finished articles such as pallets, flooring, tool handles, and tent stakes.

For such products as pallets, which normally last about five years when used in storage warehouses, a single three-minute dip should provide protection throughout their serviceable life. The addition of 5% water-repellent pentachlorophenol to the above solutions will prevent decay where pallets and similar products must be stored outdoors. Since the chemicals mentioned above do not seriously discolor the wood, dipped products may be finished with wax or varnish. Before the finish is applied, however, the dip must be thoroughly dry.

Where dipping is inconvenient, stored uninfested products can be protected with repeated aerosol (fog) application. Ten percent DDT plus 2% lindane in oil solution, at a dosage of one-half gallon per 100,000 cubic feet of warehouse space, has been very

effective in preliminary limited tests. Six to eight foggings at two-week intervals during the period of beetle emergence prevented attack.

Fogging is effective only on items that are loosely piled. Large piles, tightly packed so that fog cannot reach and form a deposit on the surface of the wood, will not be protected. The fog will not control larvae already established within the wood.

Remedial Measures

All untreated products made of the sapwood of susceptible hardwoods should be inspected twice a year. Small piles of powder and the presence of dead beetles are signs of attack. When such evidence is found, control measures should be applied promptly.

For lumber, pallets, tool handles, and similar products, dipping infested products in an oil solution of DDT, toxaphene, chlordane, or lindane (as recommended under Preventive Measures) will kill all stages of the insect in the wood and will prevent reinfestation. Handles and similar small items may be dip-

ped in the boxes or crates in which they are packed. Lumber and pallets may be dipped in any convenient manner, so long as the liquid reaches all surfaces of the wood.

Fumigation will kill active infestations within the wood, though it will not prevent reinfestation. In tight chambers at atmospheric pressure, 1, 3, and 9 pounds of methyl bromide per 1,000 cubic feet and exposure periods of 24, 16, and 3 hours, respectively, are effective. In vacuum cylinders, with a vacuum of 27-29 inches, 4 pounds of methyl bromide per 1,000 cubic feet for 3 hours are satisfactory. Fans are necessary in both types of chambers to insure proper circulation of the gas. Where fumigation chambers are not available, control is possible by covering infested stock with a gas-proof tarpaulin, sealing the edges of the tarpaulin with sand, and then exposing the stock to 4 pounds of methyl bromide per 1,000 cubic feet of space for a period of 72 hours.

Proper kiln-drying of lumber will kill all stages of *Lyctus* within the wood, but it will not



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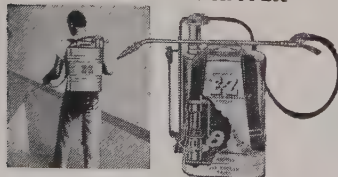
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prevent reinfestation. Dry lumber also can be purposely heat-treated to kill infestation; the exposure time will vary with thickness of the lumber and the temperature and relative humidity of the kiln. Table 1 gives examples of exposure periods necessary to kill the insects after a kiln has attained the desired conditions of temperature and humidity.

Infestation in **hardwood floors, interior woodwork** of buildings, and **furniture** can be controlled by thoroughly saturating the exposed surfaces of the wood with 5% DDT in a refined oil carrier, such as deobase, ultrasene, or mineral spirits. This treatment also aids in preventing reinfestation. More than one application may be required to effect adequate penetration. Best penetration is obtained where the finish is removed before treatment.

These solutions may soften the finish temporarily, so that it is advisable to avoid handling furniture or walking on floors until they are thoroughly dry.

Table 1. — Kiln schedules for killing *Lyctus* powder-post beetles in wood

Relative humidity (per cent)	Temperature of kiln	Thickness of timber	Exposure period required to kill <i>Lyctus</i>
	Degrees F.	Inches	Hours
100	130	1	2½
		2	4
		3	6½
80	120	1	3
		2	9½
		3	12
60	120	1	9½
		2	11
		3	13½
60	115	1	45½
		2	47
		3	49½

Fumigating with methyl bromide gas or with hydrocyanic acid may be more practical than applying liquid insecticides, especially in buildings with widespread, heavy infestations or where infested wood is hard to reach. Since these gases are deadly poisons, only independent

buildings can be fumigated. Furniture can also be fumigated satisfactorily. All fumigation work must be done by a licensed operator.

Precautions in Handling Insecticides

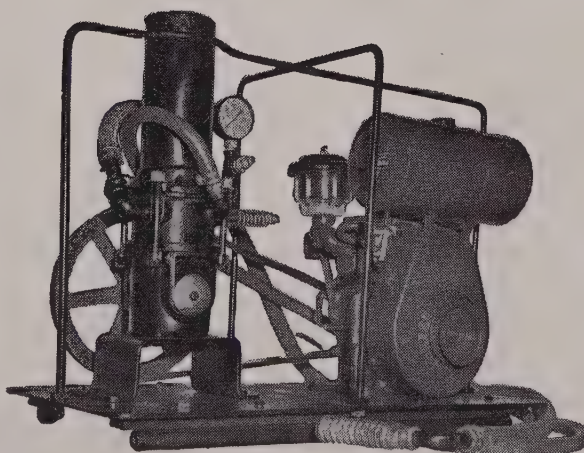
The insecticides mentioned in this article are all poisonous to

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people and animals. Operators should wear rubber gloves and a rubber apron. If insecticides are accidentally spilled on the body, they should be removed immediately with some warm and soapy water.

Breathing the chemicals is dangerous also. If sprayers are used, therefore, the nozzles should be set coarse enough to avoid atomizing the solution.

The shutting off of all pilot lights and prohibiting of smoking while spraying are important precautions; a spark may cause an explosion. In addition, the

building should be well ventilated.

Methyl bromide and hydrocyanic gases are extremely deadly and must be used only by licensed operators.

References

- Christian, M. B. 1940. Biology of the powder-post beetles, *Lyctus planicollis* Leconte and *Lyctus parallelepipedus* (Melsh.), Part I. La. Conserv. Rev. 9(4):56-59.
1941. Biology of the powder-post beetles, *Lyctus planicollis* Leconte and *Lyctus parallelepipedus* (Melsh.), Part II. La. Conserv. Rev. 10(1):40-42.
- Snyder, T. E. 1938. Preventing damage by *Lyctus* powder-post beetles. U.S. Dept. Agr. Farmers' Bul. 1477, 14 pp.
- U.S. Forest Service. 1954. Powder-post beetles in buildings: what to do about them. U.S. Dept. Agr. Leaflet 358, 8 pp.

New Sub Termite in Okla.

A fourth species of subterranean termite — **Reticulitermes hageni** Banks — has been discovered in Oklahoma, according to J. Earl Griffin of Aggie Chemical Co., Tulsa. The other three species in Oklahoma are **Reticulitermes flavipes**, **tibialis**, and **virginicus**.

"Oklahoma State University does not feel we have much to fear from drywood termites discovered in Oklahoma this summer, but **Reticulitermes hageni** may develop and give the Oklahoma termite boys a new swarming business in late August-September," Griffin told PC.

"These first form reproductive termites were red or reddish in color, and two or three 'very live' termites were 'fast movers,' faster than ordinary first form reproductives found in Oklahoma. **Reticulitermes hageni** first form reproductives are fairly small termites, about 8 mm. Their normal habitat is in the southeastern states, but infestations have been recorded in Oklahoma border states of Arkansas, Texas, and Kansas. The marriage swarm of this termite occurs much later than other Oklahoma subterranean termites and should take place in Oklahoma in August-September."

The specimens were originally discovered in Tulsa in a slab house that was one-year old and built on vacant ground covered by berry bushes and other small cellulose growth. The termites were brought to Griffin for identification by Russell Wade, Wade Terminex Co., Tulsa.

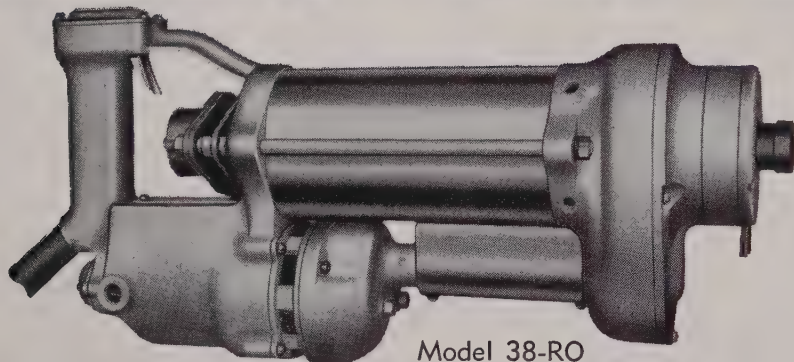
Specimens were then sent to the Department of Entomology, Oklahoma State University, Stillwater, where Professor G. A. Bieberdorf identified them as **Reticulitermes hageni** Banks. The USDA in Washington later confirmed these findings.

Termite Co. Warehouse Fire

A blaze that injured one fireman and sent flames 20 feet in the air recently destroyed a 2½-story frame warehouse of Termite Control, Inc., Roselle Park, New Jersey.

Although the warehouse was a total loss, firemen managed to keep the flames from spreading to the main company office nearby. Origin of the blaze had not been determined.

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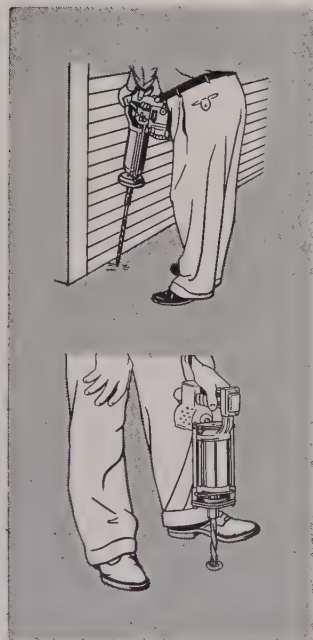
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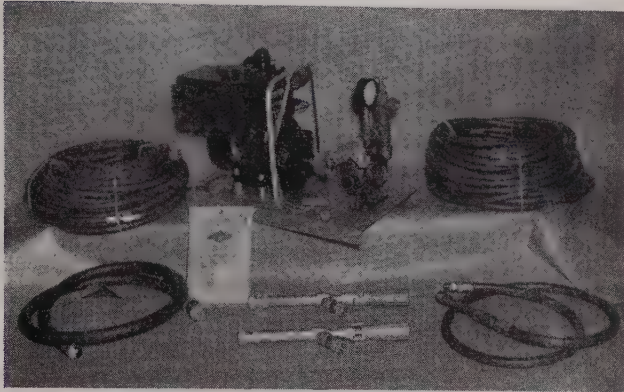
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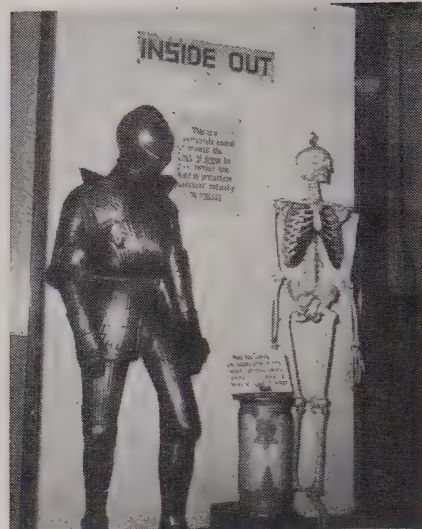
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Programs for 1958

Regional PCO Conferences



Armor pictured above is part of a display set up by Purdue's Entomology Department to demonstrate similarity between medieval armor and protective exoskeleton of boneless insect; man's skeleton is under skin.

Before the New Year is less than a month old, many pest control operators all over the country will be travelling to one of three regional industry conferences, sponsored in cooperation with the National Pest Control Association. Programs for these three meetings are carried below. Dates for other short courses and conferences will be published in Pest Control magazine as soon as they have been decided upon by their association sponsors.

18th ANNUAL

Eastern

PCO CONFERENCE

University of Massachusetts
Amherst

January 22-24, 1958

Lodging

The Lord Jeffrey Inn and Drake Hotel, both in Amherst; Hotel Northampton, in Northampton, and the Country Bell Motel and Spruce Hill Motel in Hadley. Rooms also are available in one of the University's dormitories. For dormitory rooms, write directly to Frank B. Thomas, housing officer, at the University. These rooms must be paid for in advance. Make checks payable to Convention Services. All other room reservations should be made directly with the hotel concerned.

Registration and Fees

Advance registration forms can be obtained from Frank E. Bohman, Treasurer, Eastern Pest Control Conference, Box 65, Hartford 1, Conn. Make registration checks payable to Mr. Bohman. Registration fee is \$17.50 and includes conference manual, attendance to all sessions, and incidental items.

Who May Attend

Any member of the pest control industry, manufacturers and distributors of pest control supplies, professional men interested in this field, etc.

Program Emphasis

Roaches, safety, equipment, and panel sessions on business, termites, insecticides and resistance and rodent control.

Program

Wednesday, Jan. 22: Following registration, Conference Committee Chairman Sidney Wimmer (Majestic Exterminating Co., Inc., New York City) will open the program and introduce Charles P. Alexander, head of the University of Massachusetts Entomology Department, who will greet delegates on behalf of the university. The rest of the day's program will be largely devoted to panels on business, termites and other wood-destroying organisms, rodent control, and insecticides and resistance. Participating on panels will be Jacques J. Hess, Exterminating Services Corp., New York, N.Y.; Robert Kofoed, Fogging Unlimited, Inc., Red Bank, N.J.; Mark Weintraub, Astor Exterminating Co., Cambridge, Mass.; James B. Ludtke, University of Massachusetts; Philip Mayer, Evins Exterminating Co., Great Neck, N.Y.; Robert Trenary, R. H. Young & Associates, Paterson, N.J.; Raymond H. Bigelow, Astor Exterminating Co., Cambridge, Mass.; Philip J. Spear, NPCA Technical Director; Robert Troup, Harder Extermination Service, Hempstead, N.Y.; Joseph Harris, Guarantee Exterminating Co., New York, N.Y.; L. O. Anderson, Berg Exterminating Co., Hartford, Conn.; Howard Merrill, U. S. Fish & Wildlife Service, Boston, Mass.; Herman Ratner, Ratner Pest Control, Atlantic City, N.J.; Russell J. Rowlett, Jr., Virginia Carolina Chemical Co., Richmond, Va.; Richard Keenan, Waltham Chemical Co., Waltham, Mass.; John Lembach, Residex Corp., Linden, N.J.; John A. Fluno, Entomology Research Division, ARS, Washington, D.C.; and Arthur Muka, Department of Entomology, Cornell University, Ithaca, N.Y. That evening, panel chairmen will give reports on panel discussions in an Open Forum at the Lord Jeffrey Inn.

Thursday, Jan. 23: Marion E. Smith of the University of Massachusetts Entomology Department will open the program with a discussion on "Recognition of Roaches." She will be followed by David Pimentel of Cornell University's Entomology Department, who will review ecological and physiological requirements of roaches. Charles P. Alexander, assisted by several of his staff, will wind up the morning session with a laboratory class on insect identification. The afternoon program will consist of a 2½-hour demonstration on the assembly and care of PCO equipment, directed by Charles W. Houghton, Safety Fumigant Co., Boston, Mass. In the evening, the annual banquet will be held at the Lord Jeffrey Inn. Scheduled toastmaster is Herbert Meyer of Theodore Meyer Estate, Washington, D.C. Shannon McCune, Provost at the University of Massachusetts, is to be guest speaker.

Friday, Jan. 24: The final day's program will be given over mostly to PCO safety. After the lead-off talk on safety in pest control, by E. H. Wheeler, Extension Professor, University of Massachusetts, Edward Press, American Public Health Association, Inc., New York, N.Y., will cover practical first aid for PCOs and the role of poison control centers. Next, William Turrie of Wil-Kil Co., Milwaukee, Wisc., chairman of the NPCA Safety Committee, will explain how "A Safety Man Looks at the PCO Insurance Record," while Jerry Goodman of B. & D. A. Weisburger Co., New York, N.Y., is to show how "An Insurance Man Looks at the PCO Safety Record." Final speaker on the program will be Philip J. Spear, who will give a recap of what's new in the industry.

Additional Programs next page

22nd ANNUAL

Purdue

PCO CONFERENCE

Purdue University, Lafayette, Ind.

January 27-31, 1958

Lodging

Purdue Union Club, Fowler Hotel, Lahr Hotel, Morris Bryant Hotel, Cedar Crest Hotel. The Purdue Union Club is located on the University campus. Fowler and Lahr Hotels are in downtown Lafayette. Cedar Crest Hotel is on Highway 52, approximately 1½ miles northwest of the campus. The Morris Bryant Hotel is about 3 miles northwest of the campus, also on Route 52. Send all requests for reservations directly to the hotels.

Registration and Fees

All National Pest Control Association members in the Mid-West will automatically receive advance registration forms from NPCA headquarters. Purdue also is mailing out pre-registration forms to persons who attended the conference last year. For others, forms may be obtained by writing to Dr. John V. Osmun, Head, Department of Entomology, Purdue University, Lafayette, Ind. Cost of registration is \$16 and is payable by check to Dr. Osmun. Fee includes attendance at all sessions, conference manual, banquet ticket, and other items.

Who May Attend

Pest control operators, members of affiliated industries, and anyone else interested in pest control.

"Pest of the Year"

Termites and other wood-infesting insects.

Program

Monday, Jan. 27: Following registration, which opens at 8 a.m., and welcoming remarks from Purdue's Dean Earl Butz, the balance of the day will be devoted to simultaneous programs for newcomers and veteran conferees. Talks and demonstrations will be handled by the university's Department of Entomology personnel. For first and second year registrants, G. E. Lehker, B. E. Montgomery, and J. J. Davis will direct morning instruction on fundamental insect biology and control, while H. O. Deay, L. Chandler, and W. D. Fitzwater (U. S. Fish & Wildlife Service, Assistant District Agent) will be in charge of the advance program, covering recognition of insects and vertebrate pests. In the afternoon, newcomers are to hear talks on recognition of insect damage by J. V. Osmun, and insect identification by H. O. Deay. A National Homes tour will be conducted for oldtimers.

Tuesday, Jan. 28: The entire day will be given over to the conference's "Pest of the Year"—wood infesting insects (specifically, subterranean termites that day.) Six concurrent rotating sessions will review identification of wood infesting insects; recognition and biology of subterranean termites; relationship of construction to infestation; chemicals, dosages, and cost; accepted methods of control; and pre-treat-

ment. Speakers, respectively, include H. O. Deay; Roy Pence, Department of Entomology, University of California, Los Angeles; John Cook, Cook's Pest Control Co., Decatur, Ala.; W. L. Butts, Purdue Entomology Department; Ralph E. Heal, Executive Secretary, National Pest Control Association; and Myron Smith, Hill-Smith Systems, Memphis, Tenn. In the evening, Harvey Sturgeon, Sturgeon Pest Control, Louisville, Ky., will be moderator at an open discussion on controversial control methods. H. L. Bruer, who administers the Tennessee Pest Control Law, will cover enforcement problems in state termite laws. He is Director of the Tennessee Division of Plant Industry.

Wednesday, Jan. 29: Morning discussion of the "Pest of the Year" will be broadened to include insects other than termites. In the first segment, Eugene Gerberg, Insect Control & Research, Inc., Baltimore, Md., will explain the biology of powder-post beetles, while Ira Hatfield, Wood Treating Chemicals Co., St. Louis, Mo., and D. R. MacPherson, Extermite Termite Service, Huntington, W. Va., will describe control measures for them. The rest of the morning program will be dedicated to carpenter ants, carpenter bees, miscellaneous borers, and controls. Respective speakers are W. L. Brehm, Hygienic Sanitation Co., Philadelphia, Pa.; L. Chandler; Philip Spear, NPCA Technical Director; and Joseph Kowal, U. S. Forest Service, Asheville, N. C. A panel on wood insects, to follow, will bring together on the platform Roy Pence, Joseph Kowal, Ira Hatfield, a mycologist, Myron Smith, and John Osmun. The afternoon session will include demonstrations of PCO-inspired equipment; foundation treatment, by W. L. Butts; and soil filtering, by G. E. Gould of the Purdue Entomology Department. That evening, spiders will be in the spotlight. Curtis Wingo of the University of Missouri Entomology Department will review necrotic spider bites in the Mid-West; and Sherman Minton, Indiana University Medical Center, venomous animals and spiders.

Thursday, Jan. 30: Morning talks will be mostly on vertebrate pests. Bird control will be the topic of Art Gibson, Sentinel Laboratory, Springfield, Ill., and of John Beck, U. S. Fish & Wildlife Service, Columbus. Next, W. D. Fitzwater and Nixon Wilson, of Purdue, will review squirrels, snakes, mice, bats, and rabbits in suburban areas. The final talk of the morning will be on ectoparasites—types; movement from birds, bats, and rodents; and their control. Speaker will be Harry Pratt, Communicable Disease Center, Atlanta, Ga. James Henry, Hygienic Sanitation Co., Philadelphia, Pa., and W. N. Bruce, Illinois Natural History Survey, Urbana, will open the afternoon session with pointers on fly control. Dan Shankland, Purdue, will follow them with details on the fate of insecticides after application. Concluding the session will be an address on successful communication, by E. R. Ryden, Purdue Agricultural Extension Service. The annual banquet will be held that evening.

Friday, Jan. 31: Cockroach discussions will dominate the final day of the conference. A film on roach control techniques, made during the conference, will be shown by R. C. Yeager, Rose Exterminator Co., Cincinnati, O. Following that will be comments on changing habits and habitats by Harlan Shuyler, Conservation Industries, Inc., Kansas City, Kas.; sanitation in roach control by Joe Watkins, Vogel-Ritt of Michigan, Inc., Detroit; and new chemicals, by Philip Spear.

18th ANNUAL

Southern

PCO CONFERENCE

Washington-Youree Hotel

Shreveport, Louisiana

February 3-4, 1958

Lodging

The Washington-Youree Hotel. However, the Captain Shreve is in the same block and has adjoining passageways and lobby with the Washington-Youree Hotel.

Registration and Fees

Registration fee is \$15. Advance forms can be obtained by writing the National Pest Control Association, 250 West Jersey St., Elizabeth, N. J.

Who May Attend

Anyone interested in pest control.

Program Emphasis

Increasing business profits.

Program

Monday, Feb. 3: Registration will begin at 8 A.M., and then Truman Thomas, The Anti-Pest Co., Shreveport, local conference chairman, will open the formal program at nine. First scheduled speaker is O. W. Rosewall, professor of entomology, Louisiana State University. He will recount the history of the Southern Conference. Next, Philip J. Spear, NPCA Technical Director, is to discuss latest developments in the field of resistance. His talk will prelude a panel discussion by six PCOs, showing how representative operators handle resistant roaches, ticks, and fleas. Panel members include William Elo, Pest Exterminators Co., San Antonio, Tex.; W. L. Seale, Seale Pest Control Corp., New Orleans, La.; James Sims, Cardinal Pest Control Co., Montgomery, Ala.; Louis Havard, Havard Pest Control Service, Hattiesburg, Miss.; and Noad Corley, Corley Pest Control, Dallas, Texas.

Frank Hagaman, Jackson, Miss., Certified Public Accountant, will ring in the Monday afternoon session with some tips on hidden costs that affect net profit; while local chairman Thomas is to analyze the comparative cost of doing business in the Southern area. Concluding afternoon speaker is Herman Fellton, Getz Exterminators, Inc., St. Louis, Mo. He will describe procedures for efficient storing and handling of supplies and equipment on a service

(Continued on page 55)



Okla. PCO Conference Program

The Eighth Annual Oklahoma PCO Conference will be held in the Student Union Building at Oklahoma State University, Stillwater, Jan. 30-31.

Special speakers on termite topics will include W. R. Anderson, Chief Architect of FHA, Oklahoma City; Clyde A. Bower, Director of the Oklahoma Structural Pest & Termite Control Board; and Prof. G. A. Bieberdorf, Oklahoma State University. Other technical talks will be given by the university's Dr. H. P. Johnson, Dr. D. E. Howell, and Prof. Bieberdorf; Dr. Manning Price of Texas A. & M. College, College Station, Tex.; and Clayton Wright, C. Wright Associates, Dallas, Tex. Subjects to be covered include "Chemistry of Insecticides," "The Background of Resistance," "Resistant Roach Control," and "Control of Resistant Household Pests."

Alabama To Stage Pest-O-Rama

A large-scale "Pest-O-Rama" exposition, free to the public and sponsored by the Alabama Association for Control of Economic Pests, with cooperation from the Alabama Pest Control Association, will be held in Montgomery's State Coliseum January 20-21.

G. H. Blake, Jr., of Alabama Polytechnic Institute, Auburn, program co-chairman, said the Pest-O-Rama will feature displays of new pesticide chemicals, equipment, and methods of application, in addition to special exhibits of insects and rodents.

PCOs serving on Pest-O-Rama committees include T. J. Cavanagh, Bay City Termite Co., Mobile; and John R. Cook, Cook's Pest Control, Decatur.

Mallis, Katz to Ent. Posts

Arnold Mallis of the Gulf Research & Development Co., Pittsburgh, Pa., author of "Handbook of Pest Control", has been elected vice president of the Swadner Entomological Society of Pittsburgh. New secretary-treasurer is Harry Katz of Pittsburgh's Elco Manufacturing Co. Katz is also secretary of the Western Pennsylvania Pest Control Association.



1958 Ohio PCA officers, elected at the association's 12th annual convention early last month in Columbus, are shown above with out-going president J. J. Mooney, Columbus Pest Control, seated second from left. Shown left to right around him in the front row are Vice President Herman Flanagan, State Termite Co., Canton; Incoming President Dale A. Belknap, Capital City Exterminating Co., Columbus; and Secretary-Treasurer James King, Newark Termite and Pest Control Co., Newark, O. Elected to the Board of Directors, standing left to right, are Luther R. Amrine, Exterminal Termite Service, Marion; R. C. Yeager, Rose Exterminator Co., Cincinnati; J. V. Shoaf, Central Exterminating Co., Cleveland; Bernard G. Berger, Able Exterminating Co., Springfield; and James V. Benschoter, Bene-E-Lene Company, Toledo.

Safety, Wood Pests, Certification Share Program at Ohio PCA Convention

Pest Control operators, suppliers, and safety experts combined their experience to give valuable information to almost 100 delegates who attended the Ohio State Pest Control Association Convention in Columbus December 1-3.

Highlight of the 12th annual meeting, held at the Southern Hotel, was an address on "Today's Pesticides . . . Are Comparative Toxicities Meaningful?" by Dr. Mitchell R. Zavon, Assistant Professor of Industrial Medicine at the University of Cincinnati. Complete text of Dr. Zavon's address will be found on page 9 of this issue.

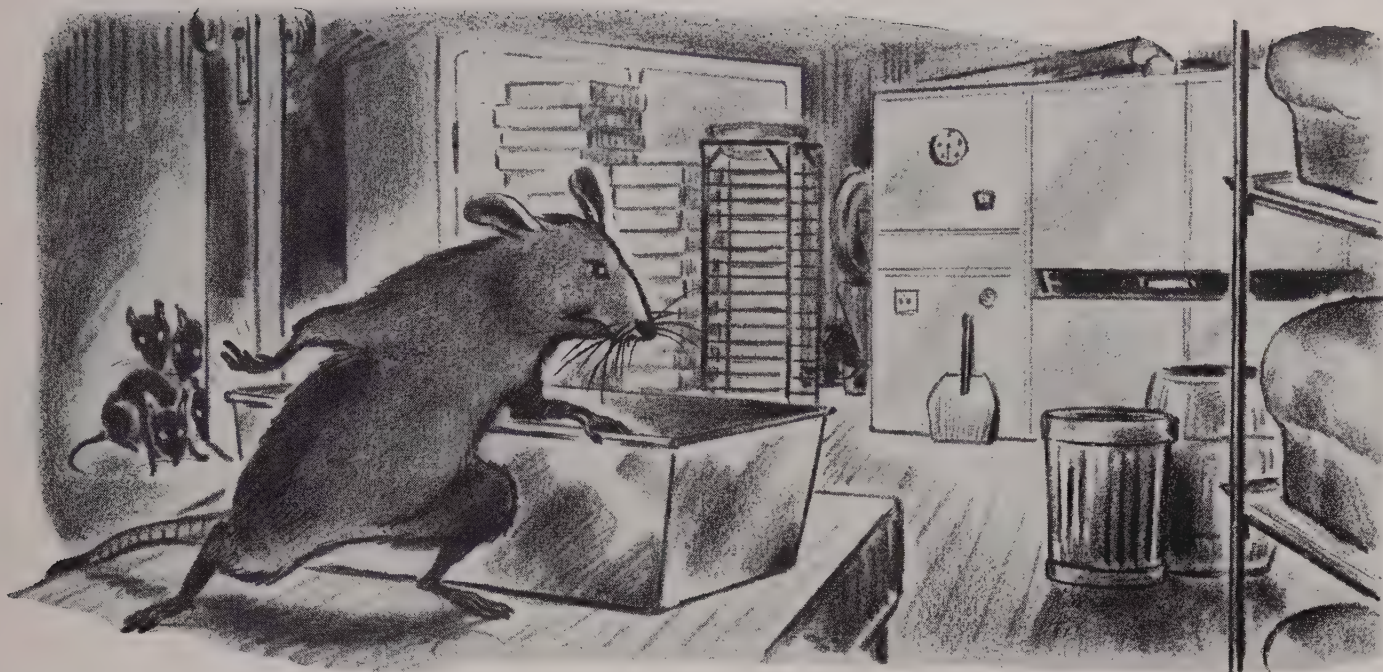
In another phase of the technical program, Elmer R. Jones, Jones Pest Control, Owensboro, Ky., said he is confident PCOs in the future will be asked to render more and more service on the increasing fungus problem. Speaking on "Cellulose Destroying and Other Troublesome Fungi", Jones said two well-defined groups of wood-inhabiting fungi cause tremendous losses annually: wood destroying fungi that attack and disintegrate cell walls, and wood staining fungi which derive nourishment from materials stored in the wood, or

cell cavities. The latter group has little or no disintegrating effect on wood itself.

"The growth of wood-inhabiting fungus," Jones told delegates, "is contingent upon four things: a favorable temperature, an oxygen supply, adequate moisture, and the presence of suitable food. The absence or elimination of any one of these requirements will prevent or greatly inhibit the growth of a fungus. All the methods for controlling decay are, of necessity, based upon this premise."

He broke practical control procedures down into two measures: (1) seasoning of the wood, i.e., reducing its moisture content below that essential for development of fungi; and (2) poisoning the wood. The latter consists of the introduction into wood of toxic substances, such as pentachlorophenol, creosote, and zinc chloride, usually under pressure.

When fungi increase in humid places, as under modern ranch homes, a musty odor problem results. That is where the PCO may be called in to solve the problem. Jones said the practice of using felt covering is of negative value, and that it is better to let the soil moisture rise and



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bleed to the outside through ventilators.

"If the relative humidity can be kept below 40-50%, musty odors will soon be corrected," Jones observed. "The addition of this ventilation service to your services will not only increase your income on this particular kind of job, but it will lower the termite re-infestation risk on your warranty."

In other discussion on wood damage, Charles V. Kyle of Extermital Termite Service, Dayton; Robert C. Yeager, Rose Exterminator Co., Cincinnati; and J. Harvey Sturgeon, Sturgeon Pest Control, Louisville, Ky., participated in a panel which answered questions from the floor on termite pre-treatment and the proposed PCO certification program.

With his talk on wood destroying organisms, Ira Hatfield, Research Director of Wood Treating Chemicals Co., St. Louis, Mo. and one of the key speakers at the convention, introduced some tips for successful selling. He urged PCOs to study the field through technical literature and offer the same literature to custo-

mers to help them sell themselves.

One of the earliest speakers on the Columbus program was Lester M. Merritt, of the Division of Safety and Hygiene, The Industrial Commission of Ohio, Columbus. Discussing occupational diseases and ways PCOs can improve their safety records, Merritt said operators must have a continuous training program to persuade servicemen that safety is part of their everyday job. Carelessness is expensive to everyone, Merritt reminded delegates.

On this part of the safety program with Merritt was Leonard Echols, Chief of the Actuarial Section, The Industrial Commission of Ohio.

Among major items on the convention business agenda was the election of officers for 1958. Newly-elected president, Dale Belknap, Capital City Exterminating Co., Columbus, replaces J. J. Mooney of Columbus Pest Control. This year, Belknap will be assisted by Vice President Herman Flanagan of State Termite Co., Canton, and reelected Secretary-Treasurer James King of Newark Termite and Pest Control Co., Newark, O. Reelected to

the board of directors were L. R. Amrine, Extermital Termite Service, Marion; J. V. Benschoter, Ben-E-Lene Co., Toledo; R. C. Yeager, Rose Exterminator Co., Cincinnati; and J. V. Shoaf, Central Exterminating Co., Cleveland. Bernard G. Berger, Able Exterminating Co., Springfield, is a new board selection.

The association plans to hold its annual summer meeting in Lancaster during August. Secretary James King will send notices to all members when dates are settled.

Church Voted Va. PCA Head

New president of the Virginia State Pest Control Association for 1957-58 is Luther M. Church of Getem Manufacturing Co., Inc., Norfolk. He was voted in during the association's annual meeting, held in conjunction with the Virginia Polytechnic Institute PCO Short Course in Blacksburg recently.

Other new officers include Herbert Myer, Theodore Myer Estate, Washington, D. C., vice president; and Lee Chambers, Aldridge & Chambers, Inc., Virginia Beach, secretary-treasurer.

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ates more smoothly, it is more trouble-free, and it is easier to maintain. The most compact, biggest-value compressor for its capacity anywhere! Other Smith Compressors include portable and stationary models from 45 to 230 cfm.

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Latish New NYPEA Pres.

Gustav C. Latish, E-Z Exterminating Co., New York city, was introduced as new president of the Professional Exterminators Association at the PEA's festive, annual dinner held at historic Fraunces Tavern in New York early last month.

Other officers for the current year are vice president Robert Patrich, Sanitation Specialists, New York city; secretary William R. Buettner, Buettner Pest Control Co., Brooklyn; treasurer William Farrell, Effective Exterminating Co., Brooklyn; and directors Al Friedman, Luther Robinson, Louis Simon, and Philip Mayer.

Over 90 PEA members and their guests attended the banquet which was preceded by a cocktail hour. Retiring president Kenneth W. Tompkins, Tompkins Exterminating Co., New York city, was presented a complete Polaroid camera outfit and case. Robert G. Bloch, Brooklyn Exterminating Co., was master of ceremonies for the program, which included a quiz program headed by Samuel Diner, American Pest Control Co., Bronx, N.Y., and a magic show provided by his 15-year-old son, Steven. Dancing concluded the evening.

Kentucky PCA Elects Myers

Kentucky Pest Control Association members elected O. L. Myers of Kentucky Terminix Co., Louisville, association president at their fourth annual convention held recently in Louisville.

Other new officers chosen are Georges M. LaChance, Louisville Chemical Co., vice president; and C. B. Smith, Allpest Chemical Co., Louisville, secretary-treasurer. Incoming directors are Robert C. Yeager, Rose Exterminator Co., Cincinnati, O.; Fred Gardner, Orkin Exterminating Co., Louisville; Verlon Grosser, Allpest Chemical Co., Louisville; and Elmer Jones, Jones Pest Control, Owensboro, Ky.

Texas PCA Convention

(from page 36)

Goldsmith Co. in Dallas; and W. C. Driver, D & F Pest Control, Grand Prairie, Tex.

Termites and Soil Types

The ultimate relationship between soil types and termite behavior was the subject of a morning session led by Dr. Osmun. He said that although

it is not absolutely necessary for common subterranean termites to be in constant contact with soil, soil does provide a convenient and readily available source for the unbalanced diet which they require. Termites can get much of the proteins, Vitamin B, minerals, and fats they require all from soil.

Not all types of soil need the same amount of insecticide to be toxic to termites. Muck is the most difficult in which to get thorough penetration of the toxicant. Sand is one of the easiest.

The structure of wood and the

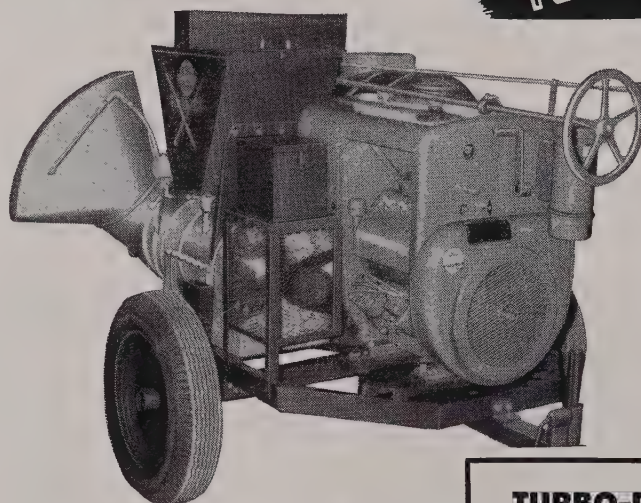
reasons for its breakdown due to insect or fungus attack was explained by Ira Hatfield, Director of Research for Wood Treating Chemicals. His illustrated lecture evoked so much interest that it will be published in Pest Control soon. Mr. Hatfield's major premise is that the difference between a do-it-yourselfer and a trained PCO is "know-how." Without a proper understanding of all that is involved in his work, a PCO will have a difficult time selling his service, Mr. Hatfield said.

Attempts to control brown dog

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TURBO-DUSTING Features

- Velocities up to 180 m.p.h.
- 14,000 cu. ft. of air per minute.
- Covers 100 acres per hour.
- Does not spot cars, homes, or windows.
- Penetrates a city block from vehicle on the street.
- Longer residual benefits than fog or smoke.
- Kills more flies and mosquitos at lower cost than any other method.

ticks in their egg stage usually results in failure, Dr. Byron Williamson of Agricultural Specialties, Dallas, told the group. He said the best time for control is while this insect is in its larval or nymph stage in those areas where the dog-host spends most of his time. Dr. Williamson reported he has found .5 to 1% Diazinon or Dicapthon most effective for controlling resistant brown dog ticks.

Both Dr. Williamson and Clayton Wright, who also spoke on house fly control, emphasized the need to know insect habits well if you're going to get lasting control.

Other speakers on the program, which rivaled a national convention in quality and organization, included two experts on safety. Dr. Henry A. Holle, Texas Commissioner of Health, spoke on the industry's responsibilities in the field of hazardous substances, and Dr. R. W. Fogelman, from Hazleton Laboratories, Palo Alto, Calif., told the group what toxic symptoms to look for from insecticides.

Texas PCA counselor, R. F. Voyer, reported on legislative

matters and cautioned the membership against quick sponsorship of any type of industry legislation. Laws, he said, will not eliminate the careless, unethical PCO any more than statutes have prevented malpractice by some doctors and lawyers.

Robert L. Showalter, executive assistant for the National Pest Control Association in Elizabeth, New Jersey, reviewed action taken by NPCA members at their recent national convention authorizing negotiations with the Federal Housing Authority to set up certification of PCOs to provide soil pretreatment to prevent termite attack prior to construction.

William I. Elo, Pest Exterminators Co., San Antonio, reported on limited experiments with Dicapthon which looks promising for control of resistant German roaches.

During its business session, the Texas association elected as its new president Louis E. McClish, of State Pest Control Service, Amarillo. Others picked to serve during 1958 are: vice-president, Lonnie F. Holder, Holder's Pest Control, Houston; and treasurer, Wilmer C. Boren, Boren's Insect

Control, Corpus Christie. Col. Esthel O. Stroube was elected to his second term as TPCA executive secretary. Directors for next year are: M. C. Vincent, Houston; U. A. Crow, Houston; Vernon L. Bryant, Laredo; Harold L. Bush, Austin; Donald E. Stroope, Waxahachie; W. C. Driver, Grand Prairie; Carold O. Abel, Ft. Worth; and D. D. Jackson, San Angelo.

Chairman for the convention was Dr. C. A. Trimbois of Protex Service in Dallas. Next year's annual meeting will be held at the Rice Hotel in Houston.

Weed Control Conference

Leading authorities from three nations will be on hand to discuss weed control at early sessions of the Southern Weed Control Conference January 13-15 at Memphis, Tenn.'s Hotel Peabody, according to Dr. W. B. Ennis, Jr., president of Weed Society of America, conference sponsor.

For more details, write Dr. Ennis. He is Acting Chief of the Crops Protection Research Branch, Crops Research Division, Agricultural Research Service, Beltsville, Md.

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Dyna-Fog Jr. is "just the ticket" where portability is required: Drive-ins, Industrial Plants, Schools, Restaurants, General PCO work, Inside and Outside. Automatic formulation safety shut-off valve. Adjustable fog particle size from 0.5 to 50 microns. Extremely high velocity air flow. Complete with hand air pump and starting batteries. 2 gal. tank capacity.

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Infestation Report

Contains pertinent portions of the Department of Agriculture's Cooperative Economic Report, material from university entomology departments and reports from readers. PCOs noticing infestations in their own areas are urged to communicate with Pest Control so their information may be added to this infestation report.

BOXELDER BUG (Leptocoris trivittatus)

Oregon: Causing concern to homeowners at various locations in Willamette Valley. **Utah:** Troublesome in number of homes.

COCKROACHES

Illinois: *Blaberus giganteus* L. specimens found in banana room of a wholesale grocery house, Danville. **Texas:** *Supella supellectilium* and *Periplaneta americana* infesting a house in College Station.

FLIES

Utah: House and blow flies troublesome and very numerous some Washington County communities. Cluster flies considerable problem some homes in Logan.

STORED PRODUCTS INSECTS

Alabama: Larvae of dark mealworm and Angoumois grain moth numerous in stored grain, Lee County. Yellow mealworm, Cadelle, red flour beetle, and cigarette beetle causing light damage to stored grain. Large numbers of hide beetle (*Dermestes maculatus*) found in feed supplements in Lee County. **California:** New infestations of khapra beetle (*Trogoderma granarium*) reported from Holtville, Imperial County. Heavy on sacks of barley. This represents 314th infestation reported in state since beginning of program. **Oregon:** Dermestids more frequent in numbers throughout western areas than in previous years. Several inquiries received, concerning control of drug-store beetle (*Stegobium paniceum*). Indian-meal moth (*Plodia interpunctella*) reported frequently in stored walnuts from several Willamette Valley locations. Damage very light from stored grain pests in 12 establishments inspected in Umatilla, Baker, and Grant Counties. No khapra beetle found.

TERMITES

Alabama: *Reticulitermes flavipes* swarming in dwelling house in Lee County. **Florida:** *Kalotermes snyderi* Light in adult stage collected in house at Miami, Dade County. **Maryland:** Heavy infestation of *Reticulitermes flavipes* in boards under porch of home at Gaithersburg. **Mississippi:** *Reticulitermes flavipes* killed three-year-old apple tree in Newton County.

TICKS

Connecticut: *Ixodes ricinus* scapularis taken while engorging on shoulder of 11-year-old boy at Middlefield. Unusual record for State. **Oklahoma:** *Rhipicephalus sanguineus* numerous in few homes most larger towns in state. **Texas:** *Rhipicephalus sanguineus* infesting dogs and homes in Brazos County.

Ferris New CSMA Head

James E. Ferris of Hooker Electrochemical Co., Niagara Falls, New York, was elected 1958 president of the Chemical Specialties Manufacturers Association early last month at the association's 44th annual meeting in Hollywood, Florida.

Voted first vice president was Donald M. King, Masury-Young Co., Boston, Massachusetts. Other new officers include Dr. George W. Fiero, Esso Standard Oil Co.,

New York, N.Y., second vice president; P. C. Reilly, Reilly Tar & Chemical Corp., Indianapolis, Indiana, treasurer; and H. W. Hamilton CSMA, New York, N.Y., secretary.

Three members were elected to the CSMA Board of Governors for three-year terms. They were Charles E. Beach, John C. Stalport & Sons, Inc., Baltimore, Maryland; Charles E. Alderdice, Jr., The Bell Co., Chicago, Illinois; and Harry E. Peterson, Peterson Filling & Packaging Co., Danville, Illinois.

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Regroup Mass. Ent. Dept.

Approval to consolidate activities of the University of Massachusetts' College of Agriculture under a new Department of Entomology and Plant Pathology has been given by the University's Board of Trustees.

Actual reorganization is expected early this year, at which time a new department head will be selected. The various departments and services will continue to function with their present heads until that time, Dean Dale H. Sieling said. Detailed plans for the new department call for various sections with a leader similar to the currently formed Department of Horticulture.

Acting as entomology section leader under the new system will be Dr. Charles P. Alexander, present head of the entomology department.

U. of Ill. Sanitation Course

A special Food Plant Sanitation Short Course, attuned to the interests of pest control operators, will be conducted by the University of Illinois Division of University Extension February 3-6. Headquarters will be the school's Illini Union in Urbana.

Dr. Richard Marsh of the university's Department of Food Technology, Short Course coordinator, said talks in conjunction with field trips will cover sanitation in restaurants, dairies, and hospitals. Other speakers will discuss odor control, food poisoning, and control of micro-organisms.

Inquiries should be addressed to Hugh Davison, conference supervisor, 116-C Illini Hall, Champaign, Ill.

Approves Diazinon for Resale

The U. S. Department of Agriculture has accepted a label for 1/2% Diazinon solution in deodorized kerosene with directions for use against roaches and other household pests, according to the manufacturer, Geigy Agricultural Chemicals. Such action indicates the pesticide is now considered safe enough for use by the general public, and small package sales of Diazinon to the householder may soon develop, Geigy says.

PCOs who wish to package Diazinon for resale should follow directions and precautions recommended by the manufacturer.



Annual Nebraska Meeting. Members of the Nebraska Association of Pest and Termite Control Operators are shown at a luncheon held during the association's annual get-together in Omaha early last month. At the business session, new officers elected for 1958 included President Jack Morris, Aladdin Termite Service, Omaha; Vice President George A. Preece, Mid-State Pest Control, Lincoln; and Secretary-Treasurer Ralph Kephart of the Industrial Termite Control Co., Omaha.



Over 60 Florida Pest Control Association members were on hand at the University of Florida in Gainesville recently for the third annual Structural Pest Control Short Course, sponsored jointly by the university's Department of Entomology and the Florida PCA. Co-Chairmen were Dr. John T. Creighton, head of the university's Department of Entomology, and Earl Dixon, Peninsular Pest Control of Jacksonville, president of the Florida Pest Control organization.

Gordon Smith 45-P Compressor

The Model No. 45-P compressor, manufactured by Gordon Smith & Co., Inc., reportedly is fast starting, highly maneuverable and compact.

Because it is air-cooled and has no radiator to freeze or water pump to act up in cold weather, the 45-P assures more and steady pressure under all operating conditions, according to the manufacturer. Operated by a 12-volt electrical system connected to the starter and generator, it is said to deliver over 45 cubic feet per minute with pressure up to 150 PSI.

The unit weighs 825 pounds, measures 82 inches in over-all length, including tongue, and is equipped with a nine-gallon gasoline tank.

Other portable Smith compressors include models 75-P and 120-P. A brochure describing the

45-P and other size compressors may be obtained by writing Gordon Smith & Co., 453 College St., Bowling Green, Ky.

CSMA May Proceedings

Proceedings of the 43rd Mid-Year Meeting of the Chemical Specialties Manufacturers Association May 20-22 in Chicago are now available from H. W. Hamilton, CSMA Secretary, 50 East 41st Street, New York City 17, N.Y.

Hamilton said one copy of the Proceedings has been sent to each registrant at the meeting and each CSMA member that was not present. Additional copies of the 193-page publication are available from CSMA for \$7.50 each, postpaid in the U.S. and Canada.

The cost post-paid to other countries is \$8.00 for each issue.



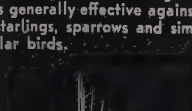
TYPE S-56 — recommended for starlings, sparrows and small birds although it is generally effective against pigeons.



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Join the many satisfied P.C.O.'s that are reporting excellent rodent control with HOPKINS WARFARIN PELLETS. Satisfied customers are our best recommendations. Depend on HOPKINS for quality products to assist you with your local problems. Plan now to cash in on profitable lawn insect — crab grass control this spring and summer. INQUIRE ABOUT HOPKINS GREEN LAWN INSECTICIDE also WRITE FOR DETAILS ON OUR NEW CRAB GRASS CONTROL.





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FDA Sanitation Inspector

(from page 20)

ful rodent preventive. Obviously, however, there is a real contamination hazard in cats that prowl about the plant, sleeping on bagged raw materials, and carrying food and prey onto stored ingredients or equipment.

Pigeons, other birds, and even bats, are another contaminating influence in some factories, especially in elevators and other cereal warehouses and processing establishments. Foods contaminated by birds have recently been the subject of several seizure actions under the Federal Food, Drug, and Cosmetic Act.

Following a plant inspection, the inspector leaves with management a written report of conditions he observed so corrections can be made to avoid the possibility of prosecution at a later date under the Federal Food, Drug, and Cosmetic Act.

Calendar

(New York) Professional Exterminators Assn. January Meeting, Museum of Natural History, New York City, Jan. 13, 8 p.m.

CDC Identification and Biology of Arthropods Training Course, Atlanta, Ga., Jan. 13-24.

Alabama Pest Control Assn. January Meeting, Alabama State Coliseum, Montgomery, Jan. 20-21.

North Carolina Pesticide School, College Union Building, North Carolina State College, Raleigh, Jan. 21-22.

Eastern PCO Conference, University of Massachusetts, Amherst, Jan. 22-24.

Purdue PCO Conference, Purdue University, Lafayette, Ind., Jan. 27-31.

Hawaiian Pest Control Assn. January Meeting, meeting place unselected, Honolulu, Jan. 28, 7 p.m.

Oklahoma PCO Conference, Oklahoma State University, Stillwater, Jan. 30-Feb. 1.

Southern PCO Conference, Washington Youree Hotel, Shreveport, La., Feb. 3-4.

Ill. Food Plant Sanitation Short Course, University of Illinois, Urbana, Feb. 3-6.

Pest Control Operators Short Course Student Union Building, North Carolina State College, Raleigh, Feb. 4-6.

Entomological Society of America Southwestern Branch Annual Meeting, Shamrock Hilton Hotel, Houston, Tex., Feb. 10-11.

American Mosquito Control Assn. 14th Annual Meeting, Willard Hotel, Washington, D. C., Feb. 23-26.

Primer

How's Your Vocabulary: 1

Because the science of pest control is becoming more advanced, technical terms are appearing more frequently in articles written for this industry. To be sure you remember what they mean and can pronounce them properly, entomologists at Purdue University prepared for the pest control industry a list of entomological terms and their definitions. Pest Control, in cooperation with the Cleveland Public Library, has added in italics a pronunciation guide for each word. Capital letters indicate where the accent is placed. Monthly Primers for 1958 will cover the list from A to Z. Words will be arranged alphabetically.

As a test of your word power, definitions and terms have been shuffled out of order. Put the letter before the correct definition in the blank space before the term it defines.

- | | |
|--------------------------------------|------------------------------------|
| 1. ____a (prefix)
(eh) | 7. ____ante-(prefix)
(an TEH) |
| 2. ____abdomen
(ab DOH m'n) | 8. ____antenna
(an TEN uh) |
| 3. ____adult
(a DULT') | 9. ____anterior
(an TEER ee or) |
| 4. ____aestival
(ESTivahl) | 10. ____appendage
(uh PEN dij) |
| 5. ____aestivation
(estiVAY sh'n) | 11. ____apterous
(AP ter us) |
| 6. ____alate (adj.)
(EH layt) | 12. ____aquatic
(uh KWAT ik) |
| | 13. ____arboreal
(ahr BOH r'el) |
- (a) winged; in termites, the winged female; in other insects, any winged form when the apterous also occurs.
- (b) living in, on, or among trees.
- (c) without wings, wingless.
- (d) the paired segmented sensory organs, borne one on each side of the head, commonly termed horns or feelers.
- (e) without or wanting; i. e., asexual, without sex.
- (f) occurring in summer.
- (g) before; i. e., ante-penultimate, the second before the last.
- (h) in front; before.
- (i) the third or posterior division of the insect body; consists normally of nine or ten apparent segments; bears no functional legs in the adult stage.
- (j) the full-grown, sexually mature insect, imago.
- (k) dormance in summer or during periods of continued high temperatures; or in a dry season.
- (l) any part, piece, or organ attached by a joint to the body or to any other main structure.
- (m) living wholly in water.

Answers on page 56

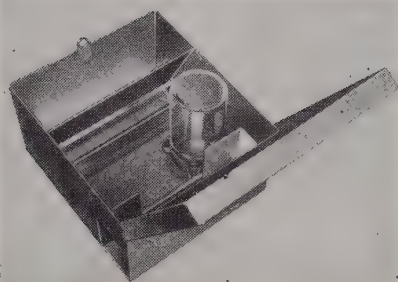
Cites Fly Resistance to Some Organic Phosphates

Fly resistance to organophosphorus insecticides is on the upswing, according to test results obtained over a three-year period at U.S. Department of Agriculture research centers in Florida.

USDA entomologist G. C. Labrecque recently singled out malathion, Dipterex, Diazinon, and parathion as organophosphorus compounds to which flies have demonstrated increased resistance in Florida experiments. During recent tests, he said, USDA researchers found that house flies, collected from eight dairies and six poultry houses in Florida, were 3 to 133 times as resistant to malathion sprays as normal flies.

Additionally, insecticide specialists learned 10 of the fly strains were 3 to 72 times as resistant to Dipterex; five strains were 5 to 38 times as resistant to Diazinon; and seven were 3 to 18 times as resistant to parathion.

In tests with poisoned baits,



Bait station. A new "Safety Model" of the Double Duty Bait Station has been designed by Universal Electric Products, Madison 4, Wisconsin. Constructed of 26 gauge galvanized steel, the Safety Model reportedly has a dry bait capacity of five pounds and a liquid capacity of one pint. Other features include a double safety entrance to prevent small animals from reaching the bait and a lock hasp that guards against tampering. A double spill rail also prevents rats and mice from carrying the bait outside the station.

10 strains were 13 to 105 times as resistant as normal flies to malathion, and four of these strains were 3 to 19 times as resistant to Dipterex.

Entomologist Labrecque noted that in similar tests in 1954 and 1956, resistance in these four strains to Dipterex or malathion baits did not exceed eight times normal.

PCO Conference Programs

(from page 45)

route. In the evening, Dr. Spear will give delegates a summary of 1957 NPCA Convention highlights, and Dr. Ralph E. Heal, NPCA Executive Secretary, is to review the proposed FHA certification program for termite pre-treatment of soil.

Tuesday, Feb. 4: The entire morning will be given over to a practical, on-the-spot demonstration of how to treat an existing slab-type home for termites. Myron Smith, Hill-Smith Systems, Memphis, Tenn., and Homer McBride, Burmac Termite Control, Shreveport will preside. That afternoon, Robert Russell, Technical Director for Orkin Exterminating Co., Atlanta, Ga., will discuss new rodent control procedure. A display on rodent identification, by H. F. Sessums of the U.S. Fish & Wildlife Service, State College, Miss., follows. Technical part of the conference will close with an ant identification display and discussion, by Myron Smith. The annual banquet is that evening. Harold Schnorrenberg, Dead Shot Chemical Co., Oklahoma City, Okla., will be toastmaster.

Appropriate Bird Study Funds

Congress has appropriated \$75,000 to \$100,000 for study of control of nuisance birds. The Bureau of Fisheries and Wildlife will carry on the investigation.



This amazing FUMO-KILL insecticide is by all qualifications a leader in its field.

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GETS MICE LIKE FLYPAPER GETS FLIES

7½ lbs. \$1.00 per lb. 25 lbs. \$.90 per lb.
100 lbs \$.80 per lb.

BIRD-REPELLENT

Keep Pigeons, Starlings and Other Birds from Buildings

7½ lbs. \$1.00 per lb. 25 lbs. \$.90 per lb.
100 lbs \$.80 per lb.

PEST CONTROL CHEMICAL CO.

324 Broadway Write for details Buffalo, N. Y.

Classifieds

When answering ads where box number only is given, please address as follows: Box number, c/o Pest Control, 1900 Euclid Avenue, Cleveland 15, Ohio.

Notes: "Position Wanted" 5c per word, minimum, \$1.00. All other classifications, 10c per word, minimum \$2.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

HELP WANTED

IMMEDIATE OPENINGS for pest control operators, with "top" experience, in our Caribbean offices. Permanent and temporary positions available. High salaries, maintenance and transportation furnished. Unusual opportunities. Write or wire immediately L. L. Crosby, president, Commonwealth Sanitation Co., 3567 Bigelow Blvd., Pittsburgh 13, Pa.

OPPORTUNITIES UNLIMITED. The world's largest pest control organization (AAA-1 rated) has interesting openings for men with initiative and ambition. We operate in 28 states from coast to coast and there are opportunities open in many phases of our operation . . . servicemen, managers, technical representatives and salesmen. Experience in professions related to pest control helpful, though not necessary. Liberal salary and incentive arrangements provide unparalleled opportunities for men

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with good judgment and the ability to get along with people. Our firm, over 50 years old, offers employee benefits including paid vacations, sick leave, life insurance, hospitalization and pension plan. All replies confidential. Interviews in Atlanta at our expense. Write in detail to Orkin Exterminating Company, Inc., 713 Peachtree Street, N.E., Atlanta, Ga. Attention: Personnel Dept.

LEADING MIDWEST termite and pest control company requires Sales Manager with previous successful experience to build up present sales staff into hard-hitting organization selling to industry and home-owners. The right individual will have imagination, drive, an ambition unfulfilled who can by his activity show that he is worth a very adequate salary plus a performance bonus, profit-sharing, company car, and expenses. Your reply to Box 459 Pest Control magazine, giving complete details of previous experience and present ambitions, will be held confidential.

ENTOMOLOGISTS with structural pest control experience. We have immediate openings for aggressive young men with sales ability and minimum of 2 to 3 years of structural pest control experience to manage offices. Liberal salary, commissions and over-rides enabling hard workers to earn \$8-\$10,000 annually. Many other company benefits. Must be available immediately. Write giving experience and small non-returnable photograph. Interviews in Pittsburgh at our expense. Write L. L. Crosby, President, Commonwealth Sanitation Co., 3567 Bigelow Blvd., Pittsburgh 13, Pa.

FLORIDA CERTIFIED pest control operator wanted for unusual opportunity in responsible position. All replies confidential. Interviews in Tampa at our expense. Terminix Company, 3432 South Dale Mabry, Tampa 9, Fla.

WELL ESTABLISHED pest control business needs manager. Must have Florida certificate for G. & T. Attractive offer. Write P.O. Box 686, Ft. Myers, Fla.

EXECUTIVE to head PCO chemicals department of major chemical supplier. Degree and experience in pest control industry helpful but not required. Compensation commensurate with background and ability. Opportunity for substantial earnings. Box 457. Pest Control magazine.

WANT TO BUY

WILL PAY TOP PRICE for exterminating business in New York City area. Cash. Replies confidential. Box 439, Pest Control magazine.

WILL PURCHASE entire business— or routes currently non-profitable for your operation—or will subcontract on profit-sharing basis anywhere within 50 miles of New York City. Box 460. Pest Control magazine.

Advertisers

SUPPLIERS ADVERTISING IN JAN.

Acme Protection Equip. Co.	54
American Chemical Paint	47
American Cyanamid Co.	13
American Fluoride Corp.	57
Aromatic Products, Inc.	51
Associated Products Co.	12
Associated Sales & Supply	43
B & G Co.	6, 21
John Bean Division, FMC	10
Buffalo Turbine Ag. Equip.	49
Chapman Chemical Co.	19
Chek Chemical Co.	54
Curtis Automotive Devices	50
Donco, Inc.	7
Ewing Manufacturing Co.	41
Fairfield Chemical Div.	
FMC	3rd cover
Geigy Ag. Chemical Co.	26
Getz Exterminators, Inc.	57
Hollandia Supply Co.	57
Hopkins Ag. Chem. Co.	47
H. D. Hudson Mfg. Co.	16
Idico Products Co.	53
Magnolia Chemical Co.	56
Malrin Products, Inc.	25
Mar-Mel Products, Inc.	55
Michigan Chemical Corp.	8
Mine Safety Appliances Co.	17
Motomco, Inc.	15
Nixalite Corp. of America	53
Orb Industries, Inc.	57
Orkin Exterminating Co.	55
S. B. Penick & Co.	4
Pest Control Chemical Co.	55
Pyrrole Chemical Corp.	3
Shell Chemical Co.	4th cover
D. B. Smith & Co.	40
Gordon Smith & Co.	48
Spraying Systems Co.	43
Syntron Co.	42
Tull Chemical Co.	22
Universal Elec. Prod. Co.	57
Vaccinol Chemical Co.	43
Velsicol Chem. Corp.	2nd cover
B. & D. A. Weisburger	40
Wisc. Alumni Res. Found.	37
Wood Treating Chem. Co.	38
York Chemical Co.	58

EXPERIENCED termite control salesman would like opportunity to buy into established business, or will take over complete management if desired on a profit-sharing basis. All replies confidential. Box 458. Pest Control magazine.

WILL PAY CASH for exterminating business in Boston or Worcester area. Replies confidential. Braman Chemical Company, Box 2043 Station A, Worcester, Mass.

FOR SALE

TERMITE AND PEST control business with exclusive franchise. Now earning \$9,000-\$15,000 annually in medium-sized Midwestern city. Completely equipped. Terms available. Box 454, Pest Control magazine.

Answers to Primer on Page 54

1. (e) 2. (i) 3. (j) 4. (f) 5. (k) 6. (a)
7. (g) 8. (d) 9. (h) 10. (l) 11. (c) 12. (m)
13. (b)

Sterilan

A FLUORIDE MOTHPROOFING COMPOUND
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DURABLE **NON-INFLAMMABLE**

COMPLETELY ODORLESS and COLORLESS

**WILL NOT HARM ANY FABRIC NOT
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NO RESISTANCE PROBLEM — EVER

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**SOLD TO YOU IN ECONOMICAL POWDER
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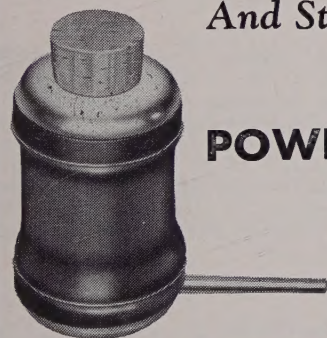
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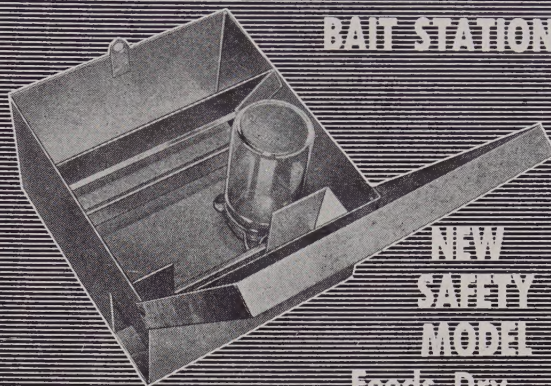
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**Feeds Dry
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Safety entrance protects pets and poultry.
Double spill rail keeps bait inside.
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Dry bait hopper, 5 pound capacity.
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Compact, sensible, economical.

For positive, field-tested rodent control, you can
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The ORB BOMB contains a
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made especially for commercial
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ALSO. . . ORB Linspray. A
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useful in carpet beetle control.

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Write for prices, details

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Pestales

Bonehead's Boner. As part of the Texas PCA convention, reported elsewhere in this issue, delegates were guests of the Bonehead Club of Dallas, a group of wealthy Texans who meet regularly at lunch for horseplay. After keeping PCOs waiting for 90 minutes while the Boneheads pulled pranks and stunts at their guests' expense, association president PCO Oliver Goldsmith, Waco, Texas, was finally introduced as speaker of the day. No sooner had Oliver opened his mouth when

all the Boneheads put on their hats and walked out. That was the end of the program! No hard feelings, though. Everyone had a good time.

* * *

Bad on Ratings. Television sales suddenly boomed in Tokyo a couple of months ago, and video executives finally found out why: an overly-enterprising TV salesman told buyers vibrations from the sets drove rats away. *Maybe it was the "Mouseketeer" show.*

* * *

Elect Steckel. New Board of Directors Chairman of SanCoa (Sanitary

Consultant Associates) is H. K. Steckel, head of The Tornado Manufacturing Co., Columbus, O. SanCoa is an organization formed by 18 independent PCOs in the Midwest to develop and offer pest control and sanitation programs to large hotel, store, and restaurant chains and to promote individual PCO training programs.

* * *

Gnat Scat. Thousands of gnats have been made radioactive by a phosphorus diet in Indio, California, to permit researchers to study their range of flight. Once released, the gnats are lured back to the ground by rotten egg bait stations. *Between radioactivity and rotten eggs, Indio sounds like one spot the tourists will skirt.*

* * *

Back to his Love. Father O. Fournier, well-known Canadian entomologist, unable recently to be the active participant in PCO activities he once was, is now rejoicing in his new assignment as Technical Director for the Canadian Pest Control Operators Association. Friends can write Father Fournier at 13385 Dorchester St., East, Montreal East, P.Q., Canada.

* * *

Party-line Pests. Squirrels cost the Illinois Bell Telephone Co. several thousand dollars a year, company officials complain, by gnawing through telephone cables and causing short circuits. *Maybe this explains all the "nuts" some people complain they have on their party lines.*

* * *

Honored Guest. Dave Weisburger of B. & D. A. Weisburger will be the guest of honor at an annual dinner of the Pest Control Division of the Federation of Jewish Philanthropies January 15 at New York City's Hotel Delmonico. General chairman for the dinner is Harry A. Rosenfeld of the World Wide Exterminating Corp.

* * *

Fleeced by Fleas. A printing plant in Turnhout, Belgium had to shut down operations last month because of a walk-out staged by workers in protest of the plant's flea problem. *That's one "nuisance" a closed-shop won't take care of.*

* * *

Erdie's Xmas Tree. R. D. Erdie, boss of Fairmont, Va.'s Ace Exterminating Co., claims he has the biggest PCO outdoor advertising sign in the state, and it only cost him "three termite jobs." Two tons of steel for the 18x40-foot neon-illuminated billboard, atop his four-story office in Fairmont, were contributed by a local steel distributor in return for two termite jobs. The neon lights came from a local neon plant manager who had Erdie in for another termite job. Retail value of the sign is about \$8,500, Erdie estimates.

YOU HAVE ALL THE ACES!

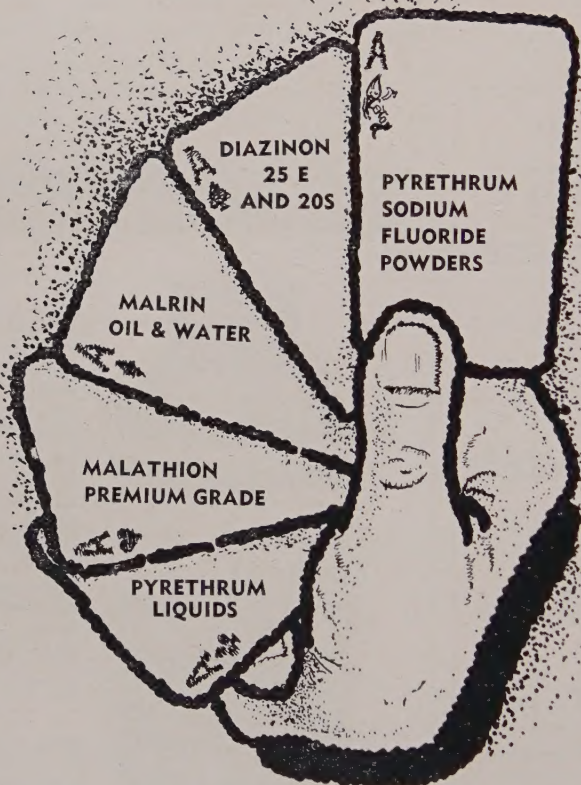
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NO other toxic agent presently available to bakery and other sanitarians is so effective . . . yet so demonstrably safe . . . for direct application in sensitive food areas as the Pyrenone concentrates.

Even against "resistant" flies and roaches, the Pyrenones yield fast knockdown and high kill. That's because *pyrethrins* in combination with technical *piperonyl butoxide*, the active ingredients of Pyrenone, act together to deliver a lethal one-two punch. Fact is, *butoxide* steps up the killing power of *pyrethrum* at least 10 times. What's more, this

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Remember, Pyrenone-type insecticides are available in spray or powder form, for any permissible use in bakeries, dairies, food warehouses and food processing plants.

For complete information on Pyrenone or other non-hazardous compounds, such as, *piperonyl cyclonene* . . . *pyrethrum* . . . *allethrin* . . . and *rotenone* . . . contact Fairfield Chemical Division. Branches in principal cities. In Canada: Natural Products Corporation, Montreal and Toronto.

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